Republic of the Marshall Islands

National Energy Policy

Draft for Final Consultation

April 2014

Foreword

(by Minister for MRD)

Acronyms & Abbreviations

ADB	Asian Development Bank
ADMIRE	Actions for the Development of the Marshall Islands Renewable Energies (GEF/SPREP)
AG	Attorney General Office
EAP	Energy Action Plan
EPA	Energy Protection Agency
EPD	Energy Planning Division
EPPSO	Economic Policy, Planning and Statistics Office
ETF	Energy Task Force
GEF	Global Environment Facility
GRMI	Government of Republic of Marshall Islands
IUCN	International Union for Conservation of Nature (World Conservation Union)
KAJUR	Kwajalein Atoll Joint Utility Resource
MEC	Marshalls Energy Company
MFA	Ministry of Foreign Affairs
MOF	Ministry of Finance
MIA	Ministry of Internal Affairs
MIDB	Marshall Islands Development Bank
MPW	Ministry of Public Works
MRD	Ministry of Resources and Development
MTC	Ministry of Transport and Communication
NEP	National Energy Policy
OEPPC	Office of Environmental Planning and Policy Coordination
PPP	Public Private Partnership
PSC	Public Service Commission
REP	Regional Energy Programme
RMI	Republic of Marshall Islands
SOE	State Owned Enterprise
SPC	Secretariat of the Pacific Community
TA	Technical Assistant
UNFCCC	United Nation Framework on Climate Change Convention
UNDP	United National Development Programme
USD	United State Dollars
USDA	United States Development Agency
WUTMI	Women United Together Marshall Islands

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Executive Summary

Introduction

This 2014 National Energy Policy of the Republic of the Marshall Islands (RMI) integrates findings and recommendations of a combined review of the RMI 2009 National Energy Policy (NEP), its Energy Action Plan (EAP), and outcomes of a national consultation held in Majuro in January 2014. In revising the NEP, the following issues were considered as important to form part of the revised NEP undertakings and commitments:

- Review and update national energy targets and goals for the development of the energy sector,
- Review policy vision, outcomes, goals, policy statements, key thematic areas, strategies and activities, including the development of baseline indicators for monitoring of progress;
- Improve policy efficiency to ensure reliability, security and high quality of energy services and energy access;
- Strengthening overall policy and regulatory framework in the energy sector;
- Putting in place a sustainable monitoring and evaluation mechanism for the implementation of activities in the energy sector including financial regimes to promote private sector participation;
- Improving coordination and partnerships between key local stakeholders and development partners; and
- Mainstreaming energy across all sectors that should include regional and global initiatives including the Sustainable Energy For All (SE4ALL) initiative.

The RMI 2014 National Energy Policy is presented as follows:

Chapter 1: National Energy Policy Framework 2014 – 2020

Chapter 2: The policies and linkages to the Strategies

Chapter 3: Monitoring and Evaluation Plan

A separate report titled "Energy Sector Review and Action Plan" " provides complementary data and information on the RMI's Physical, Social, Economic including the energy sector baseline information and current projects and the revised Energy Action Plan (EAP), 2014 – 2017. The EAP

The 2014 NEP has 4 Priority Outcomes:

1. *Improved enabling environments for reducing dependency on imported fossil fuel*
2. *All Marshallese have access to modern energy services*
3. *Smarter uses of energy in households, businesses, government ,transport sector and power utilities*
4. *Reliable, sustainable and affordable power supply*

Broad Goals[1]:

1. *Strengthens financial, policy and legislative frameworks for the energy sector*
2. *Electrification of 100% of all urban households by 2015*
3. *95% of rural outer atoll households access to off grid electrification by 2015*
4. *Access to modern forms of cooking to 90% of all households by 2020*

[1] 4 Broad goals from the 2009 NEP remains and additional four are included

5. *Households and businesses are 50% more energy efficient and 75% more energy efficient in government buildings by 2020*
6. *A 20% efficiency improvement in transportation sector fuel use by 2020*
7. *Reduce supply side energy losses by 20% by 2015*
8. *The provision of 20% of energy through indigenous renewable resources by 2020.*

Acknowledgment

1 A Framework for the National Energy Policy and Its Implementation

The RMI NEP is intended to be a pragmatic document in guiding the planning, financing and development of the energy sector in the RMI through a Whole of Sector Energy Development Approach. The *Whole of Sector Approach to Energy Development in the Pacific Islands defined in a paper by Feinstein Charles, et al, 2012, prepared for the Forum Energy Ministers Meeting, Brisbane*, seeks to strike a balance between and amongst;

- The desire for increased access to secure, reliable, affordable and high quality energy services, in both the urban and outer islands and atolls;
- Improvement of, and increased energy efficiency in all sectors; residential, commercials and government buildings and utilities including the transport sector;
- Enhancement of the potential for an increased share of renewables in the overall national energy mix; and
- The potential benefits from adopting more efficient practices in petroleum supply chain management and procurement.

1.1 RMI National Development Plan Vision

The 2014 NEP also aspires to contribute to achieving the vision of the RMI Strategic Development Plan 2003 - 2018 and thus all of its broad mission outcomes, strategies and prioritised activities should be effectively mainstreamed into the national development budgeting and strategic planning.

The vision of the RMI, as expressed in its "Vision 2018", the Marshall Islands Strategic Economic Development Plan for 2003-2018 ***is "to become a country within an inter-dependent world, with an enhanced socio-economic self-reliance, and an educated, healthy, productive, law-abiding and God-loving people in which individual freedom and fundamental human rights are protected, and culture and traditions are respected, and development and environmental sustainability are in harmony***."

The vision[2] for energy sector is aligned to the national vision which is "***an improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services.***"

A National Strategic Plan (NSP) for 2014- 2016 is currently being drafted during the write up of this Policy, with the intention of using a planning tool for the coordination of all sectoral developments to achieve the RMI Government priorities and objectives within a three year timeframe. The NSP has five priority sectoral areas; social development, environment, climate change and resilience, infrastructure development, economic development and good governance. Within its environment, climate change, and resilience frameworks, the NSP includes energy security indicators, which are also fundamental and requisite factors under the infrastructure sector.

By including the 2014 NEP Indicators within the NEP, it is envisioned that they would help progress the vision and mission of the energy sector, and thereby underscoring the importance of the MNRD integrating all NEP goals, strategies, and activities, including budgeting allocations in the NSP. It is equally important that progress and achievements on the NEP implementation schedule are evaluated against the NSP vision and goals. And it is especially opportune now that a monitoring plan has been developed as part of this policy, aligning the key strategies of the energy sub sectors to the overall vision of the energy sector and the Vision 2018.

[2] 2014 NEP vision is the same as the 2009 NEP.

1.2 Outcomes and Goals

In order to realise the energy sector vision, 4 policy outcomes and 8 goals are relevant and the linkages to the policy statements, strategies and action plans are exhibited below.

Vision

- **[An improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services]**

Outcomes

- 4 Policy Outcomes (PO)are expected as a result of implementing the policy goals;
- PO 1: Improving enabling environments for reducing dependency on imported fossil fuel
- PO 2: Ensure all Marshallese have equitable access to modern energy services
- PO 3: Smarter uses of energy in households, businesses, government, transport sector and power utilities
- PO 4: Reliable , sustainable and affordable power supply

Goals

- For Policy Outcome No. 1:
  - Goal 1: Strengthens financial, policy, legislative frameworks for the energy sector
- For Policy Outcome No. 2:
  - Goal 2: Electrification of 100% of all urban households by 2015
  - Goal 3: 95% of rural outer atoll households access to off grid electrification by 2015
  - Goal 4: Access to modern forms of cooking to 90% of all households by 2020
- For Policy Outcome No 3
  - Goal 5: Households and business are 50% more energy efficient and 75% more energy efficient in government buildings by 2020;
  - Goal 6: A 20% efficiency improvement in transportation sector fuel use by 2020
  - Goal 7: Reduce supply side energy losses by MEC to 20% by 2015
- For Policy Outcome No.4
- Goal 8: The provision of 20% of energy through indigenous renewable resources by 2020
- Policy statements and Strategies

Policy statements (see below) are aligned towards the goals and otucoments and also links to the strategies.

Strategies and Action Plan

- A list of activities (2 - 3 years) are included under each strategy (5 - 10 years) . It is antitipated that when these activities are implemented should contribute to achieving the goals within 10 to 15 years and ultimately the outcome and the energy sector vision (beyond 15 to 25 years)

Monitoring & Evaluation

1.3 Guiding principles

The guiding principles for implementing this policy is aligned to the principles adopted for national, sub regional, regional and international initiatives including the Sustainable Energy for All Initiative Goals and the Regional Framework for Action on Energy Security in the Pacific (FAESP) and the Micronesia's Energy Initiative. These guiding principles need to be embraced in the implementation of the National Energy Policy (NEP) and Energy Action Plan (EAP);

Whole of energy sector: that the government coordinates and foster partnerships and cooperation between relevant ministries and energy sector institutions, including the Marshalls Energy Company and petroleum oil companies, private sectors, non-government and community based organisations. A strong leadership with an appropriate legal mandate should be strengthened to coordinate planning and management of the energy sector. There should be a clear, appropriate and effective definition of roles for Government, Utilities and the Private Sector in the planning and management of the energy sector. Comprehensive energy planning should be undertaken, with Energy treated as an integrated sector. Simultaneously, Energy planning should be strongly coordinated with other infrastructure plans that are intensive in the use of energy; such as water and sewerage services; schools, hospitals and health clinics, commercial and industrial development.

Financial sustainability: The following principles should be considered in assessing the financing strategy:

- **Transparency**: effort should be made to calculate the opportunity costs associated with fiscal incentives. The roles of the private sector should be recognised and avenues for private sector participation be defined under a clear and transparent regulatory framework
- **Consistency**: clear criteria should be set for each incentive and they should be available to all who satisfy the criteria.
- **Accountability**: the government should report regularly to the legislature and the public on implementation of the NEP and EAP
- **Leadership:** the government should continue to show leadership in adopting energy efficiency and facilitating data and information sharing on the energy sector; but it should also package and promote as part of its investment policy the types of renewable energy projects it plans to consider as opposed to waiting for ad hoc proposals
- **Time-bound and costed**: Investments and initiatives should be guided by a realistic, time bound and wholly-costed sector plan that leads to measurable, tangible outcomes.

Environmental and Social Sustainability: Environmental and Social sustainability encompasses both minimizing local negative social and physical environmental impacts of the energy sector, as well as aligning with global goals with respect to minimizing impact on climate change. The initiatives on promoting energy efficient biomass stove for cooking in rural areas should be supported as it considers both the negative impacts of using biomass for cooking on the health of women and children, while simultaneously saves the environment.

Emphasis should be placed on the need for environmental, social cultural and gender analysis into energy plans and projects that would capture the productive and strategic uses of electricity, not just for lighting, but more so, linking electricity access to the creation of economic opportunities,

jobs, delivery of health care, education, telecommunication, access to transport and other vital services.

Climate Change: the impact of climate change and climate variability in the RMI is evident and therefore the energy sector planning and coordination is mindful of the impacts of fossil fuel usages. Through the Majuro Declaration for Climate Leadership, the government has declared it's a 40% reduction in Co2 emissions below 2009 levels by 2020 to be implemented through the Joint National Action Plan, the Green Energy Micronesia initiatives and through the revised energy policy and strategic action plan.

Data management and information: The availability, accessibility and quality of data and information for all key strategic areas are critical in order to make informed decisions and policy interventions. Continued efforts are needed across all sub-sectors for effective and efficient data collection and management.

Many Partners, One Team: Adopting the regional framework for energy security actions in the Pacific guiding principle of *"many partners one team"* approach is relevant and significant in the implementation of the national energy policy and therefore is adopted as one of the guiding principle. The 29 islands and 5 atolls of the Marshall Islands are scattered and visiting these islands to implement energy projects is expensive and takes a lot of time and efforts and therefore a many partners and one team approach is required in meeting the RMI national objective to "improve livelihood in the outer islands. This approach was used during the 2013 outer islands energy survey where EPD and MEC conducted an energy survey in 3 outer islands and included the NGO, KIO Club for the distribution of energy efficient biomass stoves as well as the Ministry of Internal Affairs and CMI for conducting the water quality testing and training.

1.3 Policy Statements

The table below provides a list of policy statements which are high level plans and intentions and are linked to the energy sector goals and outcomes. The policy statement also provides linkages to the strategies and activities (action plan) provided in Chapter 2.

OUTCOME 1 – IMPROVED ENABLING ENVIRONMENTS FOR REDUCING DEPENDENCY ON IMPORTED FOSSIL FUEL
GOAL **1.** Strengthens policy, legislative and regulatory frameworks for the energy sector
Policy statement 1: Energy Planning Division enhances the level of skills necessary to develop and revise energy policies and legislative frameworks
Policy statement 2: National energy database is developed and managed (for analysis and policy development)
Policy statement 3: Strengthen coordination and communications on energy issues[3] at national, regional (within Micronesia and wider pacific) and global level
Policy statement 4: Reliable data on the petroleum imports, sales and end-use available for decision making

[3] Including national, regional and global energy initiatives and project

Policy statement 5: Equitable wholesale and retail prices through control and regulations in the urban and rural centres

Policy statement 6: Safe storage, handling and distribution of petroleum products

OUTCOME 2: ALL MARSHALLESE HAVE EQUITABLE[4] ACCESS TO MODERN ENERGY SERVICES

GOALS

2. Electrification of 100% of all urban households by 2015
3. 95% of rural outer atoll households' access to off grid electrification by 2015
4. 90% of rural households to modern forms of cooking by 2020

Policy statement 7: A transparent tariff structure for those receiving full electricity supplies that covers the real costs at each island system, with a lifeline tariff that genuinely benefits low-income consumers without adversely affecting MEC income

Policy statement 8: An improved management and financial system for outer island PV electrification that is sustainable and recovers O&M and battery replacement costs, for household and institutional systems (e.g. health, fisheries, telecoms, and school installations)

Policy statement 9: Improving sustainable livelihoods, health and safety and environmental protection through access to clean and efficient fuels and appliances.

OUTCOME 3: SMARTER USES OF ENERGY IN HOUSEHOLDS, BUSINESSES, GOVERNMENT AND TRANSPORT SECTOR AND POWER UTILITIES

GOALS

5. Households and business are 50% more energy efficient and 75% more energy efficient in government buildings by 2020;
6. A 20% efficiency improvement in transportation sector fuel use by 2020
7. Reduce supply side energy losses at MEC to 20% by 2015

Policy statement 10: A fleet of well-maintained vehicles, government and private, that is increasingly energy-efficient over time

Policy statement 11: To develop a more energy efficient transport network for urban and rural Marshallese

Policy statement 12: An improved stock of more energy-efficient appliances and equipment widely used within government, businesses, and private homes

Policy statement 13: Measurable and substantial improvement of energy efficiency by 2020 in at least 25% of households, 50% of businesses and 75% of government buildings

[4] Equitable considers that both all people, women and men have equal access to modern energy services irrespective of their roles at households , community or in businesses, their locations and social status.

Policy statement 14: Reduction of supply-side losses by 20% in 2015, consistent with sound technical and financial criteria

OUTCOME 4: RELIABLE, SUSTAINABLE AND AFFORDABLE POWER SUPPLY

GOALS

1. The provision of 20% of energy through indigenous renewable resources by 2020

Policy statement 15: Clear policies for electric power supply, including a regulatory system that allows private indigenous renewable supply to the grid under conditions fair to MEC and the supplier (i.e. independent power producer's agreement)

Policy statement 16: Development of outer Island energy through indigenous energy sources where technically practical and economically viable

Policy statement 17: Improved capacity within the RMI to plan, develop, implement and manage renewable energy systems (small and medium-scale rural; large scale urban)

Policy statement 18: Development of alternatives to diesel fuel for power generation where economically sound

1.4 Goals, Baseline and Indicators

The 2009 NEP targets or goals are still relevant however it is further strengthened in this policy by including additional targets, baseline indicators to progress the goals. The indicators are provided as a measure of success of the NEP and therefore it links to the monitoring and evaluation plan provided in Chapter 3.

Indicators	Baseline	Goals/Targets		
	2013	2014	2020	2025
Goal 1: Strengthens financial, policy and legislative frameworks				
NEP endorsed with an Effective Monitoring and Evaluation Plan –	NEP exist and reviewed in 2014	2014 NEP endorsed	NEP evaluated	NEP revise
Consultations with the private sectors, civil societies, women focus groups, youth groups as part of the energy policy review process				
Creates financing incentives including loans and rebate to encourage RETs and EE to increase public and private sector participation[5]	Duty exemptions on RETs and EE appliances	Establish loan scheme for RE & EE appliances		
Regulatory mechanism (through existing Act) or a new Act – Energy Sector Management Act (ESMA)	No legislative framework		ESMA t enforced	

[5] Refer to Annex 1 for Financial Options

Energy data equally accessible and socially inclusive	No energy database	Energy data base available	Energy data base available	Energy data base available

Goal 2: Electrification of 100% of urban households by 2015

Goal 3: 95% of rural outer atoll households access to off grid electrification by 2015

Goal 4: 90% of total households have access to modern forms of cooking by 2020

Indicators	Baseline	Goals/Targets		
	2011[6]	2015	2020	2025
Percentage of urban households access to grid connected electricity	**85%**	100%		
Percentage of outer atoll households' access to off grid electricity. This increased to 93% in 2014	**75%**	95%		
Percentage of rural and urban households with modern forms of cooking	**66%**	90%		
Sustainability of energy services: SHS monthly tariff collection rate (%) is improved {Actual collection/ target collection}		**80%**		

Energy Efficiency in households, businesses and government buildings - Goal 5: Households and businesses are 50% more energy efficient , and 75% more energy efficient in government buildings by 2020

Indicators	Baseline	Goals/Targets		
	2008	2015	2020	2025
Percentage decrease in the average monthly electricity consumption of connected households	**158 kWh/customer (2008[7])**		50%	
Percentage decrease in the average monthly electricity consumption of commercial customers	**3283 kWh/customer**		50%	
Percentage decrease in the average monthly electricity consumption of government buildings	**10842 kWh/customer**		75%	

Energy Efficiency in Transport –Goal 6: A 20% efficiency improvement in transportation sector fuel use by 2020

Indicators	Baseline	Goals/Targets		
	2014	2015	2020	2025
% increase in fuel efficient	No restrictions on	Tax and duty	20%	

[6] Sourced from the 2011 National Census report

[7] Customer consumption data sourced from http://www.irena.org/DocumentDownloads/Publications/Marshall-Islands.pdf ; Customer number data sourced from EPPSO.

vehicles imported (engine size) and car seats (increasing load)	engine size and incentives for imports increased car seats	Incentives on larger vehicles with small engine sizes in place		
Improvement in the diesel quality used in transportation (500ppm)- MEC, 10ppm (Mobil)	500 ppm	10 ppm	10 ppm	
Percentage improvement in the efficiency of fuel use in the transportation sector – Data on fuel end use consumption – land transport	No government public transport – Staff use own cars	Tax incentives for provision of larger public transport with proper schedule around the island and provision for government public transport		

Energy Efficiency in Power Generation – Goal 7 : Reduce supply side energy losses from MEC by 20% in 2015

Indicators	Baseline	Goals/Targets		
	2010	2015	2020	2025
Combined percentage decrease in power generation and distribution losses of the power utilities	**26.21%**	20%		
Station losses MEC[8]	8.45% [9]			
Technical losses	6.41%			
Non-Technical losses	11.35%			

Renewable Energy – Goal 8:Provision of 20% of power generation through indigenous renewable resources by 2020

Indicators	Baseline	Goals/Targets		
	2012	2015	2020	2025
Share of installed power generation capacity from indigenous renewable energy. This increased to 5% in 2013	**3.46%**[10]		20%	
Affordability of energy services: percentage decrease in the average household energy expenditure load	17.6% (2002[11])			

[8] MEC is included only due to lack of data for KAJUR and other outstations in the atoll islands
[9] Sourced from the KEMA reports. Note data is specifically for Majuro alone.
[10] Energy Office Estimation
[11] 2002 HIES report

1.5 Rationale for the Revised National Energy Policy

1.5.1 National

The NEP (2009) and EAP (2009 -2012) was developed and endorsed in 2009 as the result of the "State of Economic Emergency" that was declared Government in 2008 due to exorbitant increase in the cost of imported petroleum fuel and food items.

Over the last 3 years, many broad goals of the NEP and the activities under the EAP have been realized and Government has taken drastic steps in working towards achieving other targets such as the electrification of 95% of rural outer atolls households by 2015. In terms of renewable energy, new and emerging technologies have come into scene such as wind, ocean thermal, etc that need to be captured in detail in addition to the proven technologies like solar that is being used extensively in RMI. Various Government sectors have also drafted and/or introduced policies that will complement or add value to the energy sector such as transport, public works, climate change and environment. The RMI government has taken steps to reduce its carbon emissions and shift to low carbon development through its commitment in the 2013 Majuro Declaration on Climate Leadership. There is an extensive need to strengthen the institutional structure and framework of the energy sector to ensure that the energy policy is planned, coordinated and implemented in a consistent, coordinated and structured manner. There is also a need to have a reliable energy information and database system that will be used extensively in the planning and policy coordination and ensuring the sustainability of the energy sector. There is also a need to put in place a monitoring and evaluation mechanism for the energy sector to gauge its development and also to highlight the challenges in the energy sector.

Sub regional

Green Energy Micronesia Initiative of the Northern Pacific

1.5.2 Regional

At the regional level, the Leaders met in New Zealand in 2011 for the 42nd Pacific Islands Forum (PIF) and recognized the need to have secure access to energy for the sustainable economic development of the region and reaffirming their commitment to renewable energy and the promotion of energy efficiency. The Leaders also recognized the value of energy audits, development of credible whole of sector plans and structures to improve energy security, reduce dependency on fossil fuels for electricity generation and improve access to electricity. The Leaders also support the development of effective management of fuel supply, risks, meeting energy efficiency targets, expanding existing electrical appliances energy efficiency standards and labeling programmes, facilitating greater private sector participation in the regional energy sector by systematically reducing barriers to the uptake of distributed generation. The Leaders have also called on the development partners to assist in the implementation of the activities in the national and regional energy sector and strengthen coordination of their financing activities.

In September 2013, RMI joined other Forum Is Countries in the Majuro Declaration on Climate Leadership and stated that:

"Pursuant to the Republic of Marshall Islands 2009 National Energy Policy and Energy Action Plan, the 2011 National Climate Change Policy Framework and Joint National Action Plan (for climate change adaptation, energy security and disaster risk reduction), and the Green Energy Micronesia initiative:

- *A 40% reduction in CO2 emissions below 2009 levels by 2020;*
- *Electrification of 100% of urban households and 95% of rural outer atoll households by 2015;*
- *The provision of 20% of energy through indigenous renewable resources by 2020;*
- *Improved efficiency of energy use in 50% of households and businesses, and 75% of government buildings by 2020;*
- *A 20% efficiency improvement in transportation sector fuel use by 2020;*
- *Feasibility studies and internationally supported financing plans for innovative 'game-changing' renewable energy and sustainable development opportunities including Majuro atoll waste-to-energy and Kwajalein/Ebeye atoll OTEC plants undertaken by 2015*
- *40% reduction of CO2 emissions below 2009 levels by 2020, pursuant to the 2009 National Energy Policy and Energy Action Plan, and with subject to the provision of adequate international support.*

1.5.3 International

At the international level, the General Assembly of the United Nations (UN) in recognizing the importance of energy for sustainable development designated the year 2012 as the International year of Sustainable Energy for All (SE4ALL). The SE4ALL initiative aims to mobilize urgent global action to three complementary objectives to be achieved by 2030:

- Ensure universal access to modern energy services
- Double the rate of improvement in energy efficiency
- Double the share of renewable energy in the global energy mix

2014 – 2024 has been declared as the UN's Decade of SE4ALL. This has presented an opportunity to raise awareness about the importance of increasing sustainable access to energy, energy efficiency and renewable energy at the local, national, regional and international levels. Energy services have profound effects on productivity, health, education, climate change, food and water security and communications services. The post 2015 Sustainable Development Goals will obviously feature a goal on sustainable energy. The 2014 NEP is to capture the linkages to the SE4ALL through additional targets to the 2009 NEP.

RMI is a member of IRENA, which seeks to make an impact in the world of renewable energy by maintaining a clear and independent position, providing a range of reliable and well-understood services that complement those already offered by the renewable energy community and gather existing, but scattered, activities around a central hub. IRENA is providing technical assistance to the formulation of the Renewable Readiness Assessments which will also link to this policy targets and activities.

Furthermore RMI is a member of the SIDS Dock. The RMI current project is the Sustaining Renewable Energy and Energy Efficiency Measures in Micronesia (SREEM) with two major components; MEC Power Plant Performance Improvement and Energy Efficiency Loan Scheme (EELS). The ultimate goal of SIDS DOCK is to increase energy efficiency by 25% (2005 baseline) and to generate a minimum of

50% of electric power from renewable sources and a 20-30% decrease in conventional transportation fuel use by 2033.

1.6 National Energy Policy Areas

The following key thematic areas are still relevant however one of the issues discussed during the consultation was that the imported petroleum key policy area is to focus only on imported petroleum sector while the demonstrations and research on biofuel is categorised under the Renewable energy. Thus the thematic area in the 2009 NEP was amended to Petroleum instead of Petroleum and alternative liquid fuels. The following thematic areas for the 2014 NEP;

- Energy Policy Administration and Coordination
- Petroleum,
- Electric Power,
- Transport and Energy Use,
- Energy Efficiency , and
- Renewable Energy

For each of the thematic areas; key policy statements and strategies were identified and listed accordingly however all these statements and strategies lead to the four priority outcomes of the policy;

Priority Outcomes

- Improved enabling environments for reducing dependency on imported fossil fuel
- All Marshallese have access to modern energy services
- Smarter uses of energy in households, businesses, government and transport sector
- Reliable, sustainable and affordable power supply

The following chapter provides a brief explanation of the current status of each thematic policy area including institutional settings and stakeholders as well as policy statement aligning the policy area to the four outcomes of the NEP.

1.6.1 Energy Policy Administration and Coordination

The Energy Planning Division (EPD) under the Ministry of Resources and Development (MRD) was established in 2009 during the energy crisis to formulate a policy that will guide the energy sector during the crisis and in particular identifying options that put the RMI government into an energy crisis when the global price of oil increased to above USD120 a barrel. Since then the EPD has been the focal point for all energy related activities and initiatives in the RMI from managing energy projects including the ADMIRE and the Northern Regional Energy Project (REP) and other national energy initiatives. Since the endorsement of the 2009 NEP and EAP, the EPD has been responsible in coordinating the implementation of the NEP and the 2 years EAP. Foremost and one of the priority need for the MRD and EPD is to put in place a mandatory law that governs the establishment of the EPD and its roles and functions.

The table below, taken from the 2009 National Energy Policy Framework is still relevant as it summarized the main stakeholders and their responsibilities for energy sector within government in particularly those related to policy. This remains reasonably valid in 2014 however there was discussions at the first consultation that a Cabinet paper has been submitted for housing the EPD under the Office of the President. If this happens, then the EPD will be housed together with the OEPPC and EPPSO. The formation of the national Energy Task Force (ETF) as a key advisory body reporting indirectly to Cabinet was one of the achievements in the past years however, this ETF and its membership needs legal mandate to strengthen its powers and coordination role in particular on

collating of information, coordinating and delineating its roles as a coordinating body for the RMI Energy sector. This is another priority activity under the revised EAP.

Once the ETF is formally recognized and this can be done through endorsement of this policy and its institutional framework, it will have more powers to work with other relevant ministries such as the Ministry of Internal Affairs which sets maximum retail margins for some products, including outer island petroleum fuels, as well as the Ministry of Finance in the allocation of funds and as the formal link to development agencies active in the energy sector, including the Asian Development Bank and the World Bank. Other government agencies are of course also involved in energy services including the AG office, Ministry of Public Works, Customs Division, Ministry of Transport and Communications and other relevant stakeholders. However for the ETF to have its legal mandate, a proposed Energy Sector Management Act (ESMA) should be an option that will provide legal powers and functions of the ETF. This formulation of the ESMA is included as priority activities in the Energy Strategy Action Plan (ESAP).

Key RMI Government Energy Sector Responsibilities in 2014			
Ministry of Resources and Development (MRD)	**Marshalls Energy Company** (MEC)	**Office of the President**	
Energy Planning Division (EPD) • Energy planning and coordinatj hion • Energy policy review & implementation • Public-private energy program partnership promotion • Investigation of energy service funding opportunities • Ensure standards, especially for solar equipment is in place • Establish national energy database for informed decision making and forecast of future energy demand • Regulating petroleum prices and fuel standards, storage and safety through the proposed an Act	• Electricity generation and distribution • Petroleum fuel purchase, storage and sales • RE installation, operation and maintenance **MOBIL:** Imports, storage and sales of benzene, aviation fuel and LPG.	**Economic Policy, Planning and Statistics Office** (EPPSO) • Overall development policy • Energy sector finance • Donor liaison • Collate and provides statistics and data for all sectors	**Office of Environmental Planning and Policy Coordination** (OEPPC) • Environmental aspects of energy • Focal point for Kyoto protocol (GHGs) and GEF
Notes: A separate power utility (KAJUR) serves the second main urban centre of Ebeye while small gen-sets powers the communities where high schools exists such as in Januit, Wotje The telecommunications, fisheries, education and health ministries are also involved in solar PV.			

Because energy is an input to all government and private development efforts, there is inevitably a range of overlapping, fragmented and sometimes unclear energy sector responsibilities, and these responsibilities will change over time.

Under each thematic area of the ESAP, an organization chart showing responsibilities and linkages among key players is provided. Some of these will be *ad hoc*, some will change as activities are implemented, and some may be more-or-less permanent.

Although energy matters important to all sectors of the economy and all agencies of government, the human resources of RMI are modest; it is important that a review and an assessment of all existing legislations be carried out as a first step to determine the extent to which a legal framework may be established. This is again a priority in the revised strategic and action plan.

Priority Outcome: Improving enabling environments for reducing dependency on imported fossil fuel

Policy statements:

- Energy Planning Division develops the level of skills necessary to review and manage the energy policy frameworks
- National energy database is developed and managed (for analysis and policy development)
- Strengthens coordination and communication on energy issues at national, regional (within Micronesia and wider pacific) and global level

Priority Outcome: Ensure all Marshallese have access to modern energy services

Policy statement: Improving sustainable livelihoods, health and safety and environmental protection through access to clean, efficient fuel and appliances

1.6.2 Petroleum

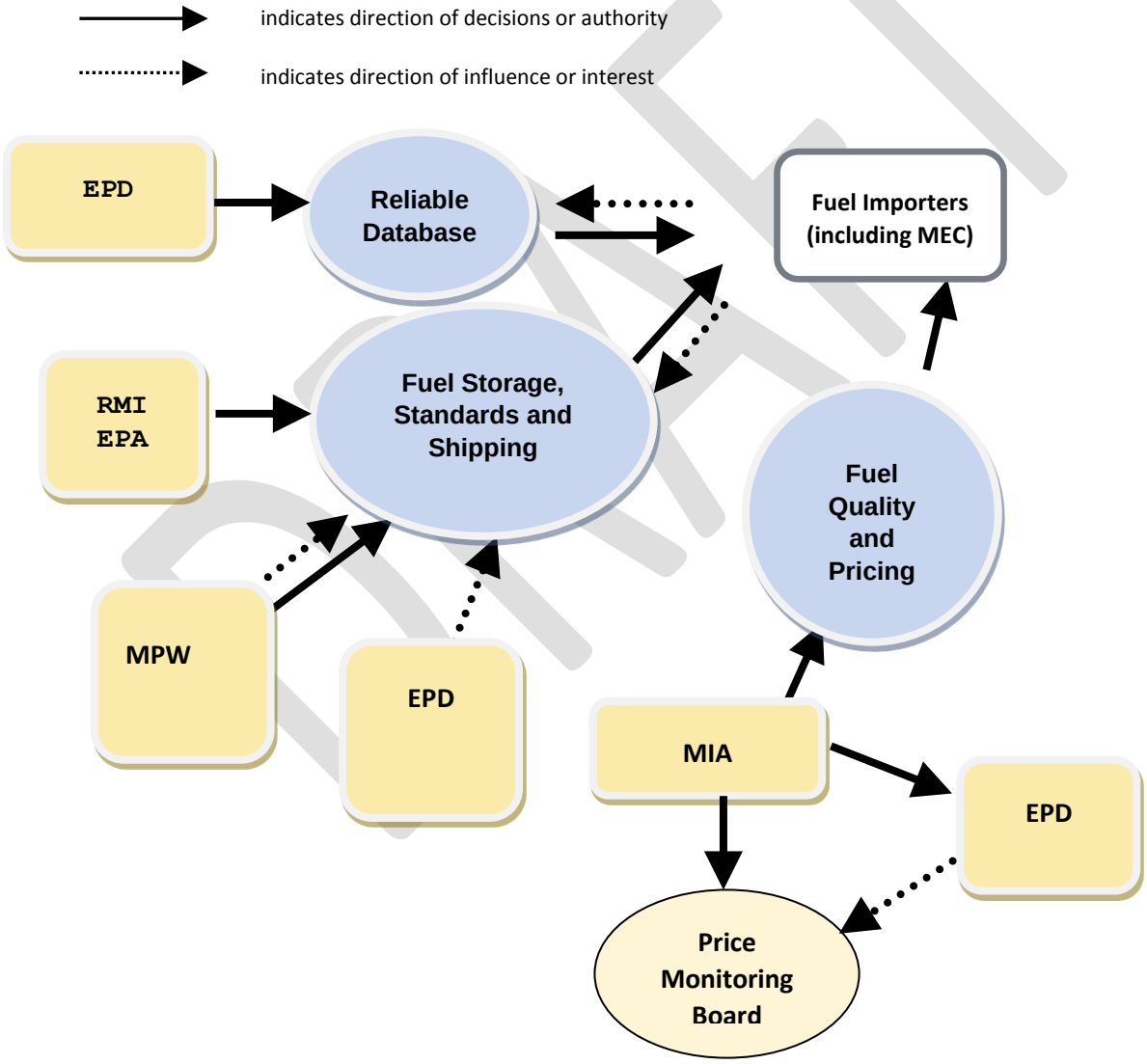
RMI is highly dependent on imported petroleum fuels. It is estimated that about 92% of energy used in 2011 was from petroleum, biomass remaining significant but declining to about 2%, with on-grid and off-grid solar totalling around 6%. The main petroleum imports are gasoline, diesel fuel, dual-purpose kerosene (used as aviation turbine fuel and household kerosene), and liquefied petroleum gas (LPG). In 2011, the RMI imported 56 million litres of petroleum fuel. The Marshalls Energy Company (MEC) and Mobil are the main importers, with MEC having very large storage capacity. Based on information for the years 2007 to 2011, 48% of imports are used for transportation and 52% for electricity generation. Kerosene demand for households is almost nil with increasing numbers of people using LPG for cooking and solar energy for lighting. However in the outer islands and atolls, there is evidence that biomass is still predominant fuel for cooking.

Despite the lack of price control, fuel prices in Majuro (excluding duties and taxes) are about average for Pacific island countries while outer islands fuel prices are notably higher.

Petroleum will continue to be the dominant fuel that drives the economy and provides social services to the people, in particular the urban areas of Majuro and Ebeye. Environmental considerations were priority with the move to change from diesel fuel for power generation changed from 5000 ppm to 500 ppm in October 2013. For the transport sector, diesel of 10ppm has also been imported to the islands by MOBIL.

A lack of regulation/legislation to monitor the costs of petroleum fuel is still a challenge in RMI as there is no monitoring of prices in the urban and rural areas. A Retail Price Monitoring Act under the Ministry of Internal Affairs currently monitors food items but not petroleum. The responsibilities regarding petroleum standards and pricing are not as developed and there is no existing legislation that provides for safety, handling, storage, distribution of petroleum products in the Marshall Islands. The second supplier of petroleum products, MOBIL is responsible for the importation of mogas (benzene), dual purpose kerosene for aviation as well as diesel for transport. The diagram below depicts an appropriate structure in a real case scenario and one which is most appropriate for the monitoring of petroleum standards, handling and pricing. The policy statements for the petroleum sector is included as part of the energy sector administration and coordination area whereby it is the responsibility of the EPD to coordinate with the MIA on the review of the Price monitoring act and also includes the licensing of the petroleum suppliers under the proposed ESMA.

In the arrows showing linkages in this and other graphics, the following conventions have been used:



Priority Outcome: Improving enabling environments for reducing dependency on imported fossil fuel

Policy statements:

- Reliable data on the petroleum imports, sales and end-use available for decision making

- Equitable wholesale and retail prices through control and regulations in the urban and rural centres
- Safe storage, handling and distribution of petroleum products

1.6.3 Electric Power

In 2011, MEC has increased accountability and revenue collection through increased use of pre-paid metering, one of the recommendations put forward in the 2010 KEMA report. The report provided an assessment of the power system determined total losses of 26.88%, relating to technical, non-technical losses, unbilled usages such as street lighting and power station losses. The power station loss was 8.45% which is relatively high, a typical station loss are lower than 5%. MEC supplies electricity on Majuro, Jaluit and Wotje and expects to eventually provide power to 28 other atolls through the operations and maintenance of solar PV home systems. Maximum demand was about 8.5 MW in 2011. MEC customers on other islands account for only 5% of demand. In the fiscal year 2011 (October 2010 through September 2011), MEC generated 62 639 MWh of electricity, used 4 098 283 US gallons (15 513 689 litres) of fuel for an overall fuel efficiency of 15.24 kWh/US gal (4.038 kWh/litre). The peak load during that period was 8.75 MW.
In that same year, MEC had 2629 standard residential meters and 462 residential pre-paid meters. Commercial meters numbered 462 and government meters numbered 145. Average household electricity consumption was 531 KWh/month; sold at about US$0.30 per kWh. Pre-paid metering was recently introduced and the plan is to convert all residential meters to the pre-paid type as soon as possible. It has been reported that the introduction of pre-paid meters has positively influenced energy conservation. Streetlights are un¬metered and therefore show up as non-technical losses. A subsidised electricity of 1000 KWh/month is provided to those persons whose land is used for transmission lines. In 2015, there are more than 600 plus households receiving this benefit.

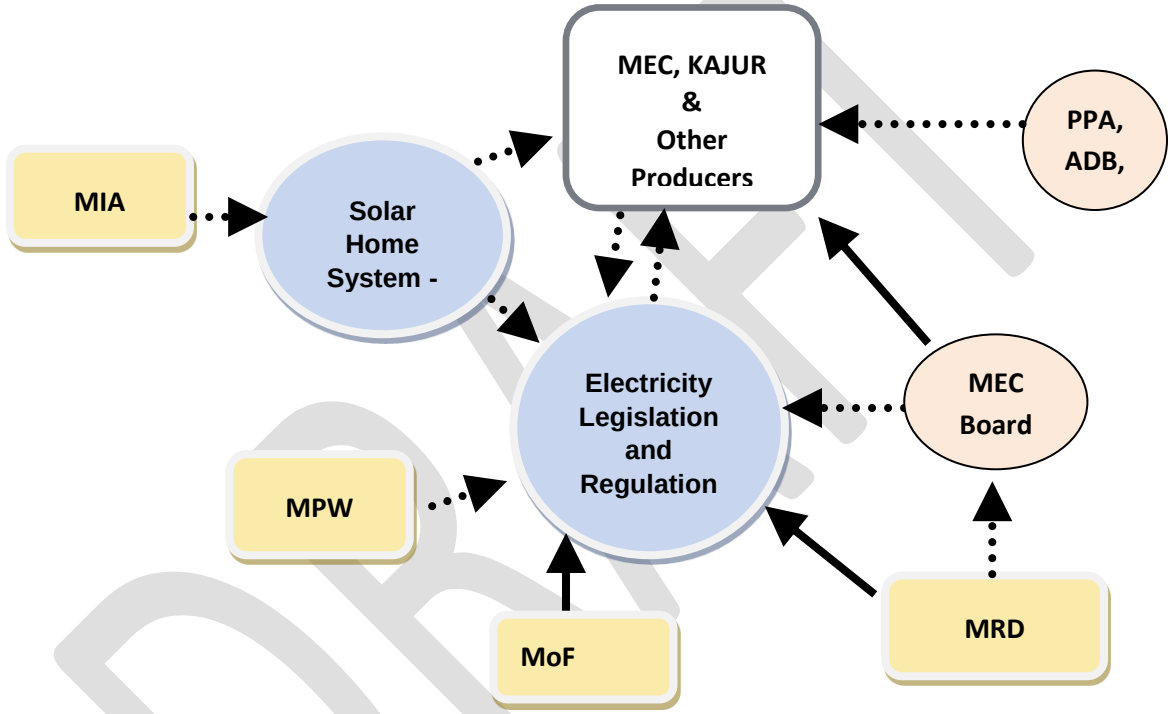
The second-largest power system in the RMI is KAJUR on Ebeye. It has an installed capacity of 4.8 MW and a peak demand of 2 MW. It has about 1 300 metred customers and generates 15.6 GWh of electricity per year using 4.2 million litres of fuel. The cost of electrical energy is heavily subsidized through duty tax imports exemptions and tax rebates given to MEC. The RMI has an electrification rate of 93% in urban areas; with several outer atolls relying on solar lighting.

There is no legislation governing the standards of electrical wirings, licensing of electricians and other electrical work outside of the MEC operations. This in effect has huge implications on the demand supply management side, which MEC should not have any liabilities against work outside of the power generation. In 2010, a two years comprehensive recovery plan was put forward by the stakeholders, MEC and Board of Directors, ADB, the World Bank, the Pacific Power Association and the RMI EPD. The goals and objectives of the MEC recovery plan is being considered in the development of this policy and action plans. The electricity pricing and monitoring is important if MEC operates in a commercial way however MEC is a state owned enterprise and it role as being developed under the Article of Association is to provide electrical or energy services to the population. RMI is the only country in the Pacific that has no electricity act and therefore legal mandates and clear responsibilities and functions of the MEC Board and MEC is not mandated through the law or Nintenja.

The outer rural islands and atolls are almost electrified through off grid solar PV home systems through various projects being implemented since 2006. However the sustainability of these solar home systems in regards to the continuation of maintenance of batteries over the lifespan as well as replacement at the end of the battery life of 5 years. Some of the root causes of the un-sustainability of these systems relates to; low payment ($5 per month) does not cover the actual operation and maintenance cost of $28 per month; limited cash income opportunities in rural households; no proper planning on ownership of the SHS; no subsidy ($13/month given to MEC), no mandated

payment or collection methods and therefore each atoll is depending on government to pay for the services. However it should be noted that government has provided MEC with electricity subsidy over the last years for the urban areas, anecdote evidence of around USD700,000.00 per annum. It is estimated **that** by the end of 2014 and with the completion of the EU/SPC Regional Energy Programme for the RMI, a total of 3,400 SHS should be in place. With a government subsidy estimated to USD530,000 per annum to continually maintain and operate and sustain the SHS for rural communities.

The following chart illustrate the various stakeholders in the electric sector, with the need for an overarching legislation that governs the electricity sector including its standards, licensing, electrical standards, etc for both relates to MEC, KAJUR and other producers as well as SHS provisions and maintenance.



The electric power sector outcomes and policy statements are summarized as follows for the purposes of follow-up actions

Priority Outcome: Ensure all Marshallese have access to modern energy services

Policy statements:

- A transparent tariff structure for those receiving full electricity supplies that covers the real costs at each island system, with a lifeline tariff that genuinely benefits low-income consumers without adversely affecting MEC income
- An improved management and financial system for outer island PV electrification that is sustainable and recovers O&M and battery replacement costs, for household and institution's systems (e.g. health, fisheries, telecoms, and school installations)

1.6.4 Transport and Energy Use

Land, sea and domestic air transport is the largest user of imported fuel in the RMI. The quality of life and the economic survival of outer island residents is tied strongly to the cost of transporting goods and people to and from Majuro, Ebeye and other islands. It is especially important that the fuel efficiency of sea transport be improved both through technical means and through improved management of the available facilities. In addition there is a need to monitor and control the freight costs to the outer islands in a way that is viable and fair to both the service provider and the end users.

The goal of the energy policy is to lower the amount of fuel imported for transport by 20% by 2020 relative to a 2009 baseline. Two types of efforts will assist meet this goal: (1) reducing energy intensity of travel my improving average vehicle fuel efficiency in miles per gallon (mpg) of fuel used; (2) reducing the amount of travel (or the need for travel) by improving efficiency of management of vehicles through increased average passenger mpg of fuel or, for freight carrying vehicles, increased average ton mpg. The use of alternative fuels may potentially result in fuel cost savings and reduced GHG emissions, alternative fuels are not considered to be a true energy efficiency strategy. While they might deliver significant fuel cost savings for the operator, an equivalent amount of energy (and sometimes more) is often required to complete the same transport task using conventional fuel. Thus the substitution of one fuel for another rarely results in energy savings[12].

Some of the improvement can come from better fuel efficiency brought about by improved maintenance of the existing vehicle stock. There are private sectors that are carrying vehicle testing and basic car maintenance facilities; however there is no enabling environment such as regulation or incentive for enforcing standards on fuel efficient or vehicle worthiness. There are no legislations on restrictions of second hand cars, importation of engine sizes and fiscal incentives for importing larger vehicles such as increased car seats.

Other initiatives are use of hybrid cars and electric vehicles which are considered relevant when reducing the fossil fuel consumption for transportation. The Ministry of Finance has received a hybrid car by the European Union for demonstration use and the benefits are yet to be documented.

The testing and maintenance process set in 2009 was mandatory for government vehicles, and vehicles owned by government-owned corporations however this action was not continued and monitored with only the ministry of education participating and continues to enforce the maintenance of its fleets. In addition the replacing of existing vehicles with more fuel efficient models was a slow process and therefore the goal set in 2009 was not met. It was also noted during the first consultation that there is an increased number of vehicles on the road. One of the target that is included in this policy is to work with Ministry of Finance and Customs Division to register the need to monitor and restrict the importation of engine sizes and to create incentives for larger vehicles (8 or more seats) for public transportation around Majuro.

One of the ongoing challenge in improving efficiency in the land transport sector is the lack of proper regulatory body which could establish policies and enforcing any legislations related to promoting and let alone usages of fuel efficient vehicles. The Ministry of Transport and Communication is

[12] Rare Consulting (2011) Fuel for Thought – Identifying potential energy efficiency opportunities in the Australian road and rail sectors.

mandated only to provide policies and standards on safety standards in the sea transport including infrastructure development however there is no mainstreaming of energy efficient and conservation in sea transport. The sustainable transport and the use of indigenous energy sources for transport is seemingly considered a very attractive prospect however technical, capacity development and social acceptance are still grey areas.

Priority Outcome: Smarter uses of energy in households, businesses, government and transport sector
Policy statements:

- A fleet of well-maintained vehicles, government and private, that is increasingly energy-efficient over time
- To develop a more energy efficient transport network for urban and rural Marshallese

1.6.5 Energy Efficiency

Demand side efficiencies can be improved greatly at relatively low cost. To date there have been no concentrated efforts to improve demand side management (DSM). There is no data available on the savings of electricity over the last years, since 2009. However there has been some efforts in reducing government spending on energy efficiency however the remaining challenges is the investment costs needed to replace inefficient air conditions and lights in all the ministries and the capitol building in Majuro.

The government is the major user of energy in RMI which accounted for around 6% of its total general fund expenditure. The policy continues to reiterate the need for the GRMI to demonstrate leadership by demonstrating good energy use stewardship in all of its activities. Energy conservation was mandated and energy audits were to be undertaken in government departments however this needs increased capacity on this field, incentives and the positive behaviour towards conservation practices.

Departments were to organize to champion good energy use stewardship, with resultant publicity of good practices and effort. An innovative proposal for the Ministry of Finance to allow Departments to retain energy cost savings for use in other expenditure areas is very noteworthy. It would be good to improve prospects for full implementation of this proposal. Plans to improve energy efficiency in the government transport fleet by improving maintenance and progressive replacement with more energy efficient vehicles imports and more public transportation requires enforcement action in the first place to become effective. The phase-out of inefficient incandescent lamps and their replacement with higher efficiency products such as light emitting diodes (LEDS) or compact fluorescent lamps (CFLs) provides one of the most straightforward and cost effective ways to significantly reduce electricity uses and carbon emissions.

Several measures such as appliance rating and labelling and favourable import duty rates to incentivize importation of energy efficient appliances; and special loan programs and training of private contractors in energy audit to allow construction or retrofitting of new or existing home to improve energy efficiency have been introduced, with limited success and remain relevant for the new planning period. Efforts to change to building code to allow increased energy efficiency needs to be fully implemented in the new planning period. This is an area where government and private sector enhance collaboration to pay huge dividends to RMI during the new planning period.

The 2010 KEMA report analysed the MEC power system determined total losses of 26.88% consisting of:

- 8.45% in power station auxiliaries (station losses) which is relatively high amount of losses. Typically, station losses are lower than 5%
- 0.67% in street lighting (which should be accounted for and billed)[13]
- 6.41% in technical losses
- 11.35% in non – technical losses.

The non - technical and technical losses total is 17.76%. The 2011 PPA Benchmarking report provided indicators and one of the agreed indicators was the transmission losses. The agreed target agreed in 2002 for transmission losses for all participating utilities in the Benchmarking report is 5%.

Priority Outcome: Smarter uses of energy in households, businesses, government and transport sector

Policy statements:

- An improved stock of more energy-efficient appliances and equipment widely used within government, businesses, and private homes
- Measurable and substantial improvement of energy efficiency by 2020 in at least 25% of households, 50% of businesses and 75% of government buildings
- Reduction of supply-side losses by 20% in 2015, consistent with sound technical and financial criteria

1.6.6 Renewable Energy

Renewable energy is the most long-term alternative source to replace imported petroleum products for electricity production in the Marshall Islands; solar photovoltaic (PV) is the most appropriate technology for electricity production from renewable energy in the RMI and the country has made considerable progress in improving energy production (electrification) using solar energy mainly in the remote and outer islands and atolls. The use of Renewable energy sources is a priority for the GRMI for its strong commitments to mitigate climate change, and also as a way of showing as an example that a small islands developing state is gravely concerned about the increase and impacts of greenhouse gas emissions (GHG) produced globally. In 2012, the ADMIRE project provided funding support for the installations of wind monitoring masts in two atolls Wotje and Jaluits to collect information on the potential for wind energy in these atolls. The island's first wind turbine was installed in April 2011 by a private firm, Moana Marine LLC. Capacity currently stands at 10 kW. Wind speeds for the island have been recorded in the past by the U.S., with averages in the region of 6-7 m/s throughout the islands.

The EDF 9 funding support through the Renewable Energy Programme (REP-5) implemented in 2008 to 2012 installed 420 SHS of 200 Wp each, 6 primary schools with a system ranges from 6 to 13 kW thus a contribution of solar PV energy of around 141 kWp. The contribution of the EU/SPC Northern Pacific Regional Energy Project (REP) has in total installed 1500 stand -alone solar PV home systems (300kWp) in all of the islands and is expected that the project to be completed by 2015. It is likely

[13] In 2009, IUCN assisted MEC to change 800 inefficient mercury vapour street lights (175 watts) to LED lights a saving of 399,055 kWh per year on street lighting

that electrification programs using solar PV will continue in the future with EU funding. The sustainability of these systems is a continued challenge however there is a discussion amongst the key stakeholders including, MRND, MEC, MIA and communities to develop a sustainable programme where the true costs of maintenance is included. The responsibilities on the maintenance and collection of maintenance fee of USD5 a month (a subsidised rate) is currently with the MEC.

Wave energy and Ocean Tidal Energy Conversion have long-term potential, but both are still at the proposal stage. Technical assistance is required for conducting feasibility study including social, economic viability. During the consultation for the formulation of the 2014 NEP and Energy Action plans ,it was suggested that proper reporting on the feasibility study should be presented to the decision makers in particular to the RMI Government. The waste to energy and OTEC are two renewable energy technologies not yet well progressed in the region.

Biomass energy has some potential as well. A proposed project for small-scale mill systems in the outer islands is currently on hold. MEC also plans to refit the Majuro Station One, Engine #3 to utilise biofuels. The Global Sustainable Energy Islands Initiative has conducted a feasibility study on the uptake of coconut/copra biofuels as a source of energy for the RMI. Tobolar copra mill is retailing a 50/50 blend of filtered coconut oil and diesel, below the price of regular diesel.

Priority Outcome: Reliable, Sustainable and Affordable Power Supply

Policy statements:

- Clear policies for electric power supply, including a regulatory system that allows private supply to the grid under conditions fair to MEC and the supplier (i.e. independent power producer's agreement)
- Development of outer Island energy through indigenous energy sources where technically practical and economically viable
- Improved capacity within the RMI to plan, develop, implement and manage renewable energy systems (small and medium-scale rural; large scale urban)
- Development of alternatives to diesel fuel for power generation where economically sound

2.0 Linking the Policy to the Strategies

The Strategies laid out in this chapter provide the linkages between the policy outcomes, goals, statements to the activities. The strategies are ideas and commitments that have been identified to achieve the policy goals or priorities and solutions. These strategies are provided for each of the policy statement under the six thematic areas.

The strategic links to the action plans which when are effectively implemented should achieve the four policy outcomes;

1. Improving enabling environments for reducing dependency on imported fossil fuel
2. Ensure all Marshallese have access to modern energy services
3. Smarter uses of energy in households, businesses, government and transport sector, and
4. Reliable, sustainable and affordable power supply

The strategies for each of the Energy Sector thematic areas are provided in tables 1 to 6.

Table 1: Energy Policy Administration and Coordination Strategy

Policy Statement 1.1: Energy Planning Division enhances level of skills necessary to review and manage the energy policy and legislative frameworks	
Strategy 1.1.1	Legislative amendments, a new energy law, regulations or a Nitijela resolution will be considered as appropriate to clarify powers and responsibilities within government for energy
Strategy 1.1.2	Annual work plan developed for MRD's Energy Planning Division with clear objectives, priorities and timeframe and reviewed quarterly
Strategy 1.1.3	Informal training of EPD staff through Energy Advisers, their inclusions in RE/EE training and possible diploma or degree level training in energy
Policy Statement 1. 2: National energy database is developed and managed (for analysis and policy development)	
Strategy 1.2.1	EPD coordinates energy database development and production and regular revision with relevant stakeholders. Energy database includes social and gender disaggregated data.
Policy Statement 1.3: Strengthens coordination and communications on energy issues at national, regional (within Micronesia and wider pacific) and global level	
Strategy 1.3.1	The Marshall Islands to engage effectively with national, regional and global stakeholders including private sectors, non- government organisations and community based organisations and vulnerable groups to promote energy initiatives,
Strategy 1.3.2	MRD participation in the budget reform process, including advocacy of performance-based budgeting within the government with energy criteria as performance measures for each government ministry and agency
Strategy 1.3.3	EPD introduces a communications plan using multiple medias and having targeted messaging to address particular interests of local stakeholder and international development partners

Policy Statement 1.4: Improving sustainable livelihoods, health and safety and environmental protection through access to clean and efficient fuel and appliances	
Strategy 1.4.1	Promote cleaner fuels and efficient cooking technologies to improve health and environmental protection particularly the women and children

Table 2: Petroleum Strategy

Policy Statement 2.1 Reliable data on the petroleum imports, sales and end-use available for decision making	
Strategy 2.1.1	Develop Petroleum Act that requires all petroleum suppliers to provide quarterly reports to relevant stakeholders, on volumes of fuel imported and sold
Policy Statement 2.2 Equitable wholesale and retail prices through control and regulations in the urban and rural centres	
Strategy 2.2.1	An independent study of petroleum pricing on Majuro and outer atolls to determine benefits and costs and a proper pricing mechanism
Policy Statement 2.3 Safe storage, handling and distribution of petroleum products	
Strategy 2.3.1	Establish and maintain a system for inspection and certification of storage, handling and safety procedures and licensing of petroleum storage and distribution facilities

Table 3: Electric Power Strategy

Policy Statement3.1: A transparent tariff structure for those receiving full electricity supplies that covers the real costs at each island system, with a lifeline tariff that genuinely benefits low-income consumers without adversely affecting MEC income	
Strategy 3.1.1	Establish an effective and sustainable plan to address tariff collection and SHS maintenance
Strategy 3.1.2	Assessment of costs and benefits to the government and MEC[14] of free electricity as part of government efforts to rationalize payments to landowners and others.
Policy Statement 3.2: An improved management and financial system for outer island PV electrification that is sustainable and recovers O&M and battery replacement costs, for household and institutional systems (e.g. health, fisheries, telecoms, and school installations)	
Strategy 3.2.1	A comparison of two sustainability models currently in use – through selling of handicrafts and through the local government funds.

[14] MEC is one of the SOE under the Ministry of Works portfolio

Table 4: Transport Energy Use Strategy

Policy Statement4.1: Policy Statement 4.1 A fleet of well-maintained vehicles, government and private, that is increasingly energy-efficient over time	
Strategy 4.1.1	Establish guidelines for the maintenance of the Government vehicle with adequate budget allocation
Strategy 4.1.2	Promote, increase awareness and create incentives (private sectors) on efficient mode of transport e.g bicycles, sail boat, fuel efficient taxis,
Policy Statement 4.2: To develop a more energy efficient transport network for urban and rural Marshallese	
Strategy 4.2.1	Investigate the practicality of retrofits to reduce fuel use in sea transport, e.g. more efficient propellers, sail-assist technologies, and other alternate energy sources

Table 5: Energy Efficiency Strategy

Policy statement 5.1 An improved stock of more energy-efficient appliances and equipment widely used within government, businesses, and private homes	
Strategy 5.1.1	Develop standardize energy conservation and efficiency templates and funding mechanisms for government developments; gradually roll out, focusing department with highest energy use
Strategy 5.1.2	Develop and implement proposals for household and businesses energy efficiency loan programs, learning from regional experience in this area
Policy statement 5.2 Measurable and substantial improvement of energy efficiency by 2020, in at least 25% of households, 50% of businesses and 75% of government buildings.	
Strategy 5.2.1	Revise taxation system to encourage the import of energy efficient air-conditioners / major household appliances & introduce mandatory standards and labelling system
Strategy 5.2.2	Develop energy efficiency standards for new buildings and renovations including homes, businesses and government premises, with financing on subsidized terms for designs and construction/renovation meeting the standards
Strategy 5.2.3	Carry out energy audits on government facilities, with the responsible departments each developing and submitting an investment plan for the capitalization of energy efficiency improvements for the facilities
Strategy 5.2.4	Develop and implement an energy management plans in government departments.
Strategy 5.2.5	Engage the public including energy efficiency service providers in energy efficiency improvement
Policy Statement 5.3 Reduction of supply-side losses to 20% by 2015, consistent with sound technical and financial criteria	
Strategy 5.3.1	Applying the recommendations from technical studies (KEMA report) and implement energy-efficient, good housekeeping and load optimization procedures

Table 6: Renewable Energy Strategy

Policy statement 6.1 Clear policies for electric power supply, including a regulatory system that allows private supply to the grid under conditions fair to MEC and the supplier (i.e independent power producer's agreement)	
Strategy 6.1.1	Development of appropriate legislation and regulations with clearly-defined authority, obligations and responsibilities for electric power supply in Majuro and throughout the RMI
Strategy 6.1.2	Quantify reduction in the national energy import bill for power generation
Policy Statement 6.2 Development of outer Island energy through indigenous energy sources where technically practical and economically viable	
Strategy 6.2.1	Determine the indigenous energy resources that are available for development through feasibility studies
Strategy 6.2.2	Expand outer island solar electrification for off-grid areas
Strategy 6.2.3	Expand Majuro grid connected solar capacity
Policy Statement 6.3 Improved capacity within the RMI to plan, develop, implement and manage renewable energy systems (small and medium-scale rural; large scale urban)	
Strategy 6.3.1	Increase awareness and provide training to public and private sector on appropriate renewable energy system
Strategy 6.3.2	Develop and monitor policies to facilitate introduction of renewable energy systems
Strategy 6.3.3	Replacement of electric water heaters with solar water heaters in existing buildings and use of solar water heaters for new buildings.
Strategy 6.3.4	Develop biofuel potential
Strategy 6.3.5	Develop policy regime including incentives and a marketing plan to increase private sector involvement renewable energy provision
Policy Statement 6.4 Development of alternatives to diesel fuel for power generation where economically sound	
Strategy 6.4.1	Independent study of the viability of alternatives to diesel fuel for power generation where economically sound (e.g. coconut oil, heavy fuel oil, grid-connected solar). - implementation of recommended viable alternatives
Strategy 6.4.2	
Strategy 6.4.3	

3.0 Monitoring and Evaluation

This section represents a plan to guide the monitoring and evaluation of the energy efforts and initiatives within the Republic of Marshall Islands over the life span of this National Energy Policy. It has been developed in conjunction with the EPD and other relevant departments, authorities, utilities and partners. The M&E plan has been developed in alignment with RMI Strategic Development Plan Objectives and the National Energy Policy Outcome, Goals and Policy statements.

Principles of the Monitoring and Evaluation Plan

1. Should be useful
2. Should be simple
3. Strengthens government's ability to track its progress and assess effectiveness, efficiency
4. Provides a sound basis for purposes – evidence and contestability
5. Enhances Transparency and Accountability

3.1 Monitoring

The EPD will be the main coordinating entity for this M&E plan. It will work alongside relevant government agencies, statistics units and the national utility to collect data and undertake monitoring and to collect data for the M&E plan. For the purpose of this plan, monitoring is used to describe an ongoing process of collecting routine data.

A monitoring log frame for this national plan is attached as **Annex 1**. It focuses on tracking the Key Outcome Indicators outlined above (Pg.26.

It is recommended that an annual monitoring report be developed summarising the key activities undertaken during the year as well as an analysis with recommendation based on progress against the M&E log frame to assist with forward planning, decision making on priorities, resource allocation and fundraising. This report should include an analysis of the extent to which the implementation of activities has contributed to the achievement of outcomes, which planned results were achieved, and some narrative on whether the planned activities were appropriate. The indicators and their means of verification, at the appropriate level in the logframe analysis, should be referred to.

3.2 Evaluation

An external evaluation will be undertaken at the mid-term juncture (2017) of the NEP and ESAP to assess progress and outcomes of the energy efforts and to assist with any refinements to the ESAP. A final evaluation should be undertaken at the end of the NEP and EAP lifespan (2020). This should also

summarise the “lessons learned” and should include information on the major challenges to the NEP and ESAP implementation, and the response to those challenges. The evaluations will be undertaken looking at key measures of **effectiveness, efficiency, relevance and sustainability**. It should also have a special reference to Gender and the extent to which gender has been integrated into energy initiatives and activities.

Annexes

Annex 1: Monitoring Plan

Goal 1: Strengthens financial, policy, legislative frameworks								
Indicators	Baseline (2013)	Annual Targets/Outputs				Lead Agency	Outcome	Reporting
		2014	2016	2018	2020			
NEP endorsed with an Effective Monitoring and Evaluation Plan	2009 NEP	2014 NEP endorsed	NEP monitored	NEP reviewed	NEP evaluate	EPD, MNRD,	Improving enabling environments for reducing dependency on imported fossil fuel	NEP policy monitoring and evaluation plan Energy Projects monitoring Plans and Evaluation Reports
Consultations with the private sectors, civil societies, women focus groups, youth groups as part of the review process	Consultations with MIA stakeholders	Integrate Gender Action Plan into the EAP				MIA, EPD		Workshop and consultation reports, Field trip to the outer islands, Project progress report
Creates financial incentives including concessional loans, rebate to encourage RETs and EE appliances and vehicles used	Duty exemptions	Concessionary loans available						Number of RE and EE appliances collated through licensing Energy Database Customs Database
ESMA passed and enforced	No legislative framework	ESMA drafted	Act passed & enforced	ESMA enforced	ESMA enforced	AG,EPD		
Energy data equally accessible and socially inclusive	No energy database	Energy database available	Energy database available	Energy database available	Energy database available			
Goal 2: Electrification of 100% of urban households by 2015								
Indicators	Baseline	Annual Targets/ Outputs				Lead	Outcome	Reporting

		2011	2015	2018	2020	Agency		
Percentage of urban households access to grid connected electricity		85%	100%			MEC	Ensure all Marshallese have access to modern energy services	MEC maintenance report MEC Financial Records MEC Customer Records
Goal 3: 95% of rural outer atoll households access to off grid electrification by 2015								
Indicators	Baseline	Annual Targets/Outputs				Lead Agency	Outcome	Reporting
		2011	2015	2018	2020			
Percentage of outer atoll households access to off grid electricity		71%	95%			EPD MIA	Ensure all Marshallese have access to modern energy services	MEC SHS Financial and Maintenance Records WUTMI records where WUTMI pays for SHS
Goal 4: 90% of households access to modern forms of cooking by 2020								
Indicators	Baseline	Annual Targets/Outputs				Lead Agency	Outcome	Reporting
		2011	2015	2018	2020			
Percentage of rural and urban households with modern forms of cooking		66%	90%			EPD, KIO	Ensure all Marshallese have access to modern energy services for cooking and heating	KIO Field trip – dissemination reports Project progress report
Sustainability of energy services: SHS monthly tariff collection rate (%) is improved {Actual collection/ target collection}			80%			MEC, WUTMI	Ensure all Marshallese have access to modern energy services	MEC financial records
Goal 5: Households and businesses are 50% more energy efficient, and 75% more energy efficient in government buildings by 2020								

Indicator	Baseline (2008)	Annual Targets/Outputs				Lead Agency	Outcome	Reporting
		2014	2016	2018	2020			
Percentage decrease in the average monthly electricity consumption of connected households	158 kWh/customer					EPD, MEC	Smarter uses of energy in households, business, government and transport sector	MEC consumer records
Percentage decrease in the average monthly electricity consumption of commercial customers	3283 kWh/customer					MEC		MEC consumer records
Percentage decrease in the average monthly electricity consumption of government buildings	10842 kWh/customer					EPSO, MoF		MEC records Government bills
Goal 6: A 20% efficiency improvement in transportation sector fuel use by 2020								
Indicator	**Baseline (2008)**	**Annual Targets/Outputs**				**Lead Agency**	**Outcome**	**Reporting**
		2011	**2015**	**2018**	**2020**			
% increase in fuel efficient vehicles imported (engine size)						EPD	Smarter uses of energy in households, businesses, government and transport sector and smarter uses	Regulation on restriction of imported vehicles Customs Records
Improvement in the diesel quality used in transportation (500ppm)-MEC, 10ppm (Mobil)						MEC,MOBIL	Ensure all Marshallese have access to modern energy services	Petroleum Imports Database through customs and Petroleum

								Suppliers
Percentage improvement in the efficiency of fuel use in the transportation sector (Data on fuel end use for land and sea transport should be collated)						EPD	Smarter uses of energy in households, businesses, government and transport sector and power utilities	Petroleum Suppliers Database – Annual Reports

Goal 7: Reduce supply side energy losses by 20% in 2015

Indicator	Baseline (2013)	Annual Targets/Outputs				Lead agency	Outcome	Reporting
		2014	2016	2018	2020			
Combined percentage decrease in power generation, and distribution losses of the power utilities						MEC	Smarter uses of energy in households, businesses, government, transport sector and power utilities	MEC – KEMA report MEC audit report
Station losses MEC KAJUR NATIONAL						MEC		Annual Reports MEC Strategic Plans
Technical losses						MEC		
Non-Technical losses						MEC		

Goal 8:Provision of 20% of power generation through indigenous renewable resources by 2020

Indicator	Baseline	Annual Targets/Outputs		Lead agency	Outcome	Reporting

	(2012)	2014	2016	2018	2020			
Share of installed power generation capacity from indigenous renewable energy	3.46%				20%	MEC, EPD	Reliable, Sustainable and Affordable power supply	Energy Project Database MEC generation and transmission reports
Affordability of energy services : percentage decrease in the average household energy expenditure load						EPD, EPSO		Number of prepayment meters Average Residential bills

Annex 2: Organisations and people consulted

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