Briefing Note

Fiji NDC Implementation Roadmap

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1. Introduction

The Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) sets out a target for limiting global warming to 1.5°C to 2°C degrees above pre-industrial levels. The National Determined Contribution (NDC) is the mechanism by which countries will achieve this target. Every country, through their NDC, will communicate their national greenhouse gas emissions reduction targets. This target is nationally determined and countries are encouraged to report on progress made towards achieving these targets. The UNFCCC requires all countries, including small island developing states like Fiji, to work towards reducing national emissions and communicating this through their NDC's.

In 2015, ahead of Conference of the Parties (COP21), Fiji submitted its first emissions reduction target which became Fiji's first NDC. Fiji's NDC aims to reduce 30 percent of greenhouse gas emissions by 2030 from a Business as Usual (BAU) scenario using 2013 greenhouse emissions as a baseline.

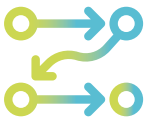
Fiji's emission reduction target focuses on the energy sector, specifically on electricity generation and transmission and demand side energy efficiency.

The 30 percent target includes;

i. a 20 percent reduction in greenhouse emissions by achieving 100 percent renewable electricity generation in the power sector.

ii. a further 10 percent reduction in greenhouse emissions is expected from economy wide reduction in carbon dioxide emissions, implicitly from the transport, industry and electricity-demand sectors.

The achievement of the goals in the NDC will require investment from the public and private sector which is outlined in this NDC Implementation Roadmap.



2. What is in the NDC Implementation Roadmap?

The goal of the NDC Implementation Roadmap (the 'Roadmap') is to chart a pathway for the implementation of mitigation actions needed to achieve the NDC for Fiji. In doing so, the objective of the Roadmap is to reduce Fiji's carbon dioxide emissions by 30 percent from a BAU baseline of 1,500 Gigagrams of carbon dioxide. If nothing is done to curb Fiji's emissions, carbon dioxide emissions is projected to increase to 1,800 Gigagrams of carbon dioxide.

Fiji's NDCs are based on the energy sector and the Roadmap focuses on three energy subsectors and highlights short (2018-2020), medium (2021-2025) and long (2026-2030) term actions required in these subsectors to achieve the 30 percent emissions reduction target.

The sub-sectors are as follows:

Electricity generation, transmission and distribution – focusing on the short, medium and long term actions required to supply efficient and renewable energy to all Fijians;

Electricity demand side energy efficiency – focusing on short to medium term actions required to influence consumer demand and behavior and creating efficient building regulations; and

Land and maritime transportation – focusing on short to medium term actions required to make the transport sector more energy efficient.

The Roadmap also highlights enabling elements, capacity building and technical assistance needed to effectively and timely implement the identified actions.

The actions identified in the Roadmap are aligned to national climate plans, policies and strategies as well as national development plans and the sector plans of statutory bodies such as Energy Fiji Limited and the Fiji Sugar Corporation. The actions of the roadmap will also have significant benefits in achieving Fiji's Sustainable Development Goals.

i. Electricity generation, transmission and distribution

These mitigation actions include the increase in renewable energy electricity generation striving to meet the potential of 100% renewable energy electricity generation across Fiji by the end of 2030 (e.g., direct mitigation). In addition, the extension and improvement of the transmission system across Fiji will strive to contribute to 100% electrification, and, at the same time, strengthen the grid to allow for full stability and synchronisation with the heavy load of renewable energy electricity entering the grid (e.g., indirect mitigation).

a. Short-Term Mitigation Actions (2017-2020)
E1: Grid Extension and Improvements (1445km grid)
E2: Increased RE Power Generation (32MWp solar PV, 12 MW biomass)
E3: Increased Sustainable Biomass for fuel use (14,000 ha)

b. Medium-Term Mitigation Actions (2021-2025)
E4: Grid Extension and Improvements (926km grid + 14 MWh grid storage)
E5: Increased RE Power Generation (26MWp solar PV, 84 MW hydro, 28 MW biomass/Waste to Energy, WTE).
E6: Increased Sustainable Biomass for fuel use (5,000 ha

c. Long-Term Mitigation Actions (2026-2030)
E7: Grid Extension and Improvements (25km grid + 148 MWh grid storage)
E8: Increased RE Power Generation (69MWp solar PV, 25 MW biomass/biogas)
E9: Increased Sustainable Biomass for Fuel Use (14,000 ha)

ii. Electricity demand side energy efficiency

The mitigation actions deemed appropriate to achieve measurable GHG mitigation under the Roadmap in the electricity demand-side energy efficiency sub-sector focus on mitigation actions that are implementable in the short- to medium- term (between 2017-2025), and which will have significant impacts on GHG mitigation through 2030. The mitigation actions can be broadly classified into four types: Energy Labelling and Minimum Energy Performance Standards, Energy Efficiency in the Business Community (including Tourism), Energy Efficiency in the Public Sector, and Updated Codes and Standards for Buildings.

a. Short- and Medium-Term Mitigation Actions (2017-2025)

D1: Energy Labelling and Minimum Energy Performance Standards

D2: Energy Efficiency in the Business Community (including Sustainable Tourism)

D3: Energy Efficiency in the Public Sector D4: Updated Codes and Standards for Building

iii. Land and maritime transportation

The mitigation actions under the Roadmap in the transport (land and maritime) sub-sector focus on actions that are implementable in the short- to medium-term, but run continuously through the long-term having a measurable impact on GHG mitigation through 2030. Some of these actions include vehicle replacement programmes for buses, taxis, private cars, lorries and minibuses, which would institute an enhanced sub-industry for the scrappage of older and less efficient vehicles. Other actions include the import and use of biodiesel, improved maintenance of sea vessels, and increased utilisation of fuel-efficient outboard motors.

a. Short-Term Actions (2017-2020)

T1: Vehicle Replacement Programme (including Hybrid vehicles + Scrappage) for Buses, Taxis, Private Cars

T2: Vehicle Replacement Programme (including Scrappage) for Lorries (<16t), Minibuses

b. Medium-Term Actions (2021-2025)

T3: B5 Fuel (5 percent Biofuel in Diesel)

T4: Improved Maintenance for Sea Vessels

T5: Fuel Efficient Outboard Motors

3.Current Status

The NDC Implementation Roadmap translates national policies and targets into bankable and scalable projects, requiring public and private sector investment. Fiji's low carbon development priorities present various opportunities for stimulating private sector investment.

Public and private investment planning should align to the investment priorities identified in the NDC Roadmap.

The Fijian Government is currently developing Fiji's NDC Investment Plan for the Energy Efficiency and Transport (land, maritime, and aviation) sectors with support from the Regional Pacific NDC Hub.

An analysis for the investment plan and proposed investment projects has been conducted. This analysis identifies options for low carbon development and possible financing options. Based on these options, the most promising investment opportunities will be further developed into a project pipeline of concept notes.

The Investment Plan will also include a consolidation of projects showing the aggregated costs, funding requirements, GHG and SDG impacts.

Public and private partnerships will be needed to deliver the investments required.

4.Examples of projects aligned to Fiji's NDC

There are numerous projects which align to the 3 sub-sectors mentioned above. Examples include:

i) Fiji Rural Electrification Programme

The Fiji Rural Electrification Programme is a government led initiative aimed at increasing access to affordable, reliable and sustainable energy for all Fijians. The provision of electricity through this programme is done under two separate modes: by the extension of the EFL power lines to communities within the reach of the grid, and by stand alone diesel generators; extensions Government Stations' power supply; or renewable energy systems like Solar and / or micro hydro projects.

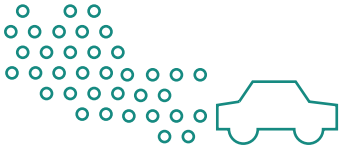
The government has allocated $7.8 million in the 2020/2021 national budget to the Department of Energy for house wiring of grid extension projects through this programme. This will be used to connect an additional 6,674 houses to the grid, which will benefit 26,696 Fijians. To date, more than 79 percent of Fiji's households are now connected to the grid[1].

ii) Fiji AgroPhotovoltaic (APV) Project in Ovalau

The Fiji APV Project was recently approved by the Green Climate Fund for USD 5 million.

This project, to be implemented in Ovalau, is designed to provide an innovative intervention to tackle climate mitigation barriers while creating an enabling environment for climate-resilient agriculture in Fiji.

The basic concept of the project is to enable simultaneous solar power generation and agricultural production in the same area. The objectives of the 4MWp Solar APV power plant in the 7-ha land are:



to enhance climate change resilience by reducing the carbon emissions and enhancing the energy security in Ovalau Island;

to revitalize community economics by promising additional sources of income from the implementation of the project to the host communities;

to improve the quality of life for the local people by providing more reliable electricity and implementing climate-resilient agriculture.

[1] *Daily Handsard. Parliament of the Republic of Fiji, 2020.*

This project will install a 4MWp APV system connected to Ovalau's micro-grid along with a 5MWh BESS for a reliable power supply in the island in order to increase its renewable generation from 0% to about 57.24%. This APV will be the first utility -scale solar PV Independent Power Producer (IPP) model in Fiji contributing to a paradigm shift in PV generation expansion in Fiji, achieving the target stated in the NDC roadmap[2].

5. How should the NDC Implementation Roadmap be used?

The Roadmap should act as a guide for all future investments by the public and private sector.

Within Government, resources should be consistently allocated to projects and programmes implemented which align to the priorities highlighted in the Roadmap.

Government departments should be aware of these priorities and ensure that their annual corporate plans and development plans also reflect these priorities.

For the private sector, aligning investments to priorities identified in the Roadmap could provide opportunities to access sources of finance designed to support projects targeted at achieving national priorities.

Realizing the opportunities available through the public sector and the expertise which exist in the private sector, effectively addressing the priorities in the Roadmap can only be achieved through partnership between both actors.

Access to 'additional' and alternative climate finance resources (bilateral, regional or multilateral and private sector resources) is urgently needed to enable tangible investments in climate adaptation and mitigation solutions to achieve the national development goals and climate goals.

A copy of the Fiji's NDC can be accessed online via the link available on MOE or CC Portal website:
https://www.economy.gov.fj/images/CCIC/uploads/Mitigation/FIJI-NDC-IMPLEMENTATION-ROADMAP_LOWRES.pdf
OR
https://cop23.com.fj/wp-content/uploads/2018/03/FIJI-NDC-IMPLEMENTATION-ROADMAP_LOWRES.pdf

Furthermore, example of potential adaptation and mitigation interventions and projects that are aligned with the NDC Implementation Plan[3] are outlined in Table 1.

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[2]*Consideration of funding proposals – Addendum XV Funding proposal package for SAP016 - Fiji Agrophotovoltaic Project in Ovalau. Green Climate Fund, 2020. (GCF/B.26/02/Add.15)*

[3]*The Climate Change and International Cooperation Division of the Ministry of Economy is developing the Fiji Climate Finance Programme and has conducted an online survey to prioritise adaptation and mitigation interventions and projects based on the flagship policies e.g. NDC Implementation Plan, NAP and LEDS. The results of this survey are also reflected in Table 1.*

Table 1: Examples of potential interventions and projects aligned with NDC Implementation Roadmap		
Objectives	**Identified Interventions from NAP and NDC IP**	**Strategic Plans Targets (2019-2022)**
1. Electricity Increase share of electricity generation from renewable energy sources Ministry of Infrastructure	• Review operation of hydropower and other renewable energy facilities to maximize output under new climate conditions • Diversify renewable energy generation to improve its resilience, including increasing generation from new solar facilities, expanding rural mini-grids and solar home systems, and completing feasibility studies for new biomass power plants • Implement a research, data collection and investment identification program to accelerate the renewable energy share in electricity generation • Increase the resiliency of the power system by investigating more diversified and distributed generation options, including mini grids	• 8 biofuel mills rehabilitated by 2022 Ministry of Infrastructure • Additional generation in Northwest Viti Levu and distributed generation in Vanua Levu, including 5*5 MW solar plants with storage in Viti Levu (Sigatoka, Lautoka, Tavua, Ba, Nadi) and 5 MW solar in Vanua Levu • 1,100 households to have solar home systems installed • 10 Mini Hydro systems installed • Promotion of Lithium Ion Battery Storage for Renewable Energy (NDC Investment Plans)
2. Energy Efficiency Improve energy efficiency in the electricity sector Ministry of Infrastructure	• Investigate options for increasing energy resilience by ascertaining the benefits of demand side management options and strategies for building resilient power systems • Implement programs to ensure efficiency in energy use • Update the codes for energy use for ventilation, cooling and lighting and enforce the application of these in both public and the private sectors • Continue to educate communities regarding the construction and maintenance of the Rocket Clean Cook stoves	• Clean Cook stoves. Open fire cooking is completely replaced with LPG, kerosene, and electric stoves in urban • Adoption of ISO 50001:2011 – Energy Management LEDS • Program to promote enhanced green tourism (NDC Investment Plans) • Capacity Building in the assessment, design, construction of low-energy and low-carbon buildings (NDC Investment Plans) • Capacity Building in energy efficiency for industry (NDC Investment Plan) • Strengthening and expanding standards and labelling program for appliances (NDC Investment Program)

Table 1: Examples of potential interventions and projects under NCCP		
Objectives	**Identified Interventions from NAP and NDC IP**	**Strategic Plans Targets (2019-2022)**
3. Marine Transport Develop and deliver safe, efficient, sustainable, reliable and affordable shipping services and marine transportation options	• Strengthen and upgrade existing ports so that they are climate- and disaster-resilient, as well as meet international standards • Develop climate-resilient jetties and landings on outer islands where needed as well as supporting road infrastructure • Replace and upgrade existing jetties as well as supporting road infrastructure so that they are climate- and disaster-resilient • Repair and upgrade navigation aids, in particular lighthouses and beacons so that they are climate and disaster resilient as well as in compliance with relevant international standards	• Support implementation of Green Ports Master Plan (NDC Investment Plan) • Zero Carbon Passenger Ferry Trails (NDC Investment Plan) • Sail-Powered Cargo/Passenger Ferries (NDC Investment Plan) • Transition to Electric Outboard Motors (NDC Investment Plan) • Finalized and Implement the Pacific Blue Carbon Shipping Program • 25 Programs on Rehabilitation of Lighthouses
4. Air Transport Build and deliver consistent, reliable, efficient, high-quality international and domestic air services	• Review and upgrade airport and airstrip infrastructure so that it is climate- and disaster resilient as well as meeting international standards	• All off-grid airports are 100% powered by solar PV • Aircraft reflecting program (NDC Investment Plan) • Aviation Operational Training Program (NDC Investment Plan) • Airports and Airfield Infrastructure Upgrade (NDC Investment Plan) • Sustainable aviation fuel integration initiative (NDC Investment Plan

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