



Samoa's Intended Nationally Determined Contribution

SEPTEMBER 2015

EXECUTIVE SUMMARY

The Independent State of Samoa is committed to combating climate change, and to the success of the negotiations for a new legally binding agreement under the United Nations Framework Convention on Climate Change at COP 21 in Paris.

Samoa is a small island developing state in the Pacific that is highly vulnerable to the impacts of climate change. However, it is only responsible for an insignificant amount of global greenhouse gas emissions. Despite this fact, Samoa is committed to addressing issues associated with climate change including adaptation and mitigation measures.

Pursuant to relevant sections of decisions 1/CP.19 and 1/CP.20 of the United Nations Framework Convention on Climate Change, Samoa hereby presents its Intended Nationally Determined Contribution as well as information to facilitate the clarity, transparency and understanding of the contribution.

Samoa is committed to reducing its GHG emissions from the Electricity sub sector through the adoption of a **100% Renewable energy target for electricity generation through to the year 2025.**

Samoa's commitment is conditional on reaching the 100% renewable electricity generation target in 2017 and receiving international assistance to maintain this contribution through to 2025.

Economy-wide emissions reduction conditional on external international assistance.

Samoa recognizes that achieving this highly ambitious target will require significant efforts to removing existing barriers. These include increases in human capacity, technology and capital investment.

1. INTRODUCTION: CONTEXT AND NATIONAL PRIORITIES

Samoa, a small island developing state in the South Pacific is at the forefront of efforts to address issues associated with the impacts of climate change. Like other islands in the region, the impacts of climate change on the environment are already quite evident and will continue to pose significant threats in the future.

On a global scale, Samoa's contribution to Greenhouse Gas (GHG) emissions are negligible as highlighted in its Second National Communication (SNC) and second GHG Inventory, 2007¹. Total emissions for the year 2007 was estimated at 352,034 tCO₂-e or about 0.0006% of 2004 global GHG emissions (IPCC, 2007). However, despite the low contribution to global emissions, Samoa is ramping up its efforts to reduce its GHG emissions and demonstrate to the global community the actions being undertaken by a small and vulnerable country to address climate change.

Samoa has demonstrated significant commitment to addressing climate change by establishing a target of generating 100% of its electricity from renewable energy sources. This commitment is proposed to be implemented over two time periods. The first target is to reach 100% renewable electricity generation by the year 2017. The second target is to maintain this 100% contribution through to 2025 in anticipation of the increasing electricity demand.

The Strategy for Development of Samoa (SDS) highlights the key strategies for development across the priority sectors. The overarching theme for the SDS 2012 – 2016 is *Boosting productivity for sustainable development*². The SDS highlights the importance of the environment as a priority area and has identified the mainstreaming of climate change across all sectors and increased investment in renewable energy as some of the main strategic outcomes. This political commitment to mainstream climate change issues is driving a number of actions that are aimed at not only adapting to the impacts of climate change but also accelerating efforts to reduce GHG emissions. The focus of Samoa's INDC is on mitigation given the short timeframe to prepare the report and carry out comprehensive stakeholder consultations. It is intended that this document will be a living document to be revised and updated when necessary.

Samoa is one of the most vulnerable countries to the impacts of climate change and some of these effects are already being felt across the country. Ongoing and planned activities are targeted at building resilience, disaster risk reduction and adapting to the adverse effects of climate change. Some of these adaptation measures are also expected to have mitigation potential.

¹ Samoa's Second National Communication to the UNFCCC, 2007

² Strategy for the Development of Samoa 2012 - 2016

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Period for defining actions & Reference Year		<p>The target year is 2025 measured against the base year of 2014.</p> <p>Implementation period 2015 - 2025</p>
Type and level of commitment		<p>Samoa is targeting the Energy Sector with a focus on the Electricity sub sector. 26% of electricity was generated from renewable energy sources in 2014.</p> <p>Samoa commits to generating 100% of its electricity from renewable energy sources by 2025. This is conditional on Samoa attaining this target in 2017 and receiving external assistance to maintain the contribution of renewable sources at 100% through to 2025. Assistance required to reach this target include human, technological and financial resources.</p> <p>Further economy-wide emissions reductions are conditional on Samoa receiving external financial assistance from the international community.</p>
Estimated, quantified emissions impact		<p>In 2014, ~55,065 tCO₂-e of Samoa's GHG emissions were from the electricity sub sector.</p> <p>(Estimates of GHG emissions were based on methodologies used in 2nd GHG Inventory, Second National Communication and IPCC 2006 Guidelines)</p>
Coverage	% National emissions (as at 2015)	The electricity sub sector accounted for ~13% of total GHG emissions in 2014 assuming business as usual scenario in all sectors since 2007. (IPCC 2006 Guidelines)
	Sectors	Energy
	Gases	CO ₂
	Geographical boundaries	Whole country
Intention to use market based mechanisms to meet commitments		Samoa currently uses no market mechanisms but is willing to pursue the potential of markets where possible.
Land sector accounting approach		Not Applicable

Planning Processes	This INDC was prepared using a targeted approach whereby key stakeholders from the energy and climate change sector were consulted to provide the necessary information for compiling the report. The short timeframe allocated for the development of Samoa's INDC did not allow for a comprehensive national consultation process. However a substantial amount of work has been done at the national level in the energy sector and has helped facilitate the formulation of Samoa's INDC.
Fairness and Ambition	<p>Samoa's Second National Communication and GHG Inventory highlighted the insignificantly low contribution of its emissions to the global aggregate. However, Samoa recognizes the potential for reduction of its emissions to not only support global efforts and demonstrate its willingness to address climate change issues but also to support the government's development vision of improved quality of life for all. As a small island developing state in the Pacific, Samoa faces the immense challenge of dealing with the adverse effects of climate change. This is made even more difficult by the fact that it has limited financial, technical and human resources.</p> <p>In setting itself a target of generating electricity from 100% renewable sources, Samoa has set a highly ambitious and fair target to demonstrate its commitment to reducing its emissions.</p>
Methodology	This INDC was prepared using IPCC 2006 Guidelines and GHG Inventory has been updated using latest available data. Key assumptions and drivers are highlighted in Samoa's 2 nd National Communication with BAU projection based on continuing economic and population growth with no GHG abatement measures.

2. SAMOA'S MITIGATION CONTRIBUTION

Samoa is committed to reducing its greenhouse gas emissions and at the same time pursue a low carbon emission development pathway which would have significant economic benefits.

The Energy sector which accounted for 50% of total GHG emissions in 2007 is targeted for emissions reductions in this INDC and in particular the electricity subsector (Figure 1). The National Energy Coordinating Committee³ which is the key decision making body in the energy sector has set a target for Samoa to generate 100% of its electricity from renewable sources by

³ The National Energy Coordinating Committee is a high level committee chaired by the Prime Minister and comprises key Cabinet Ministers and chief executive officers of ministries and agencies in the energy sector.

2017. This ambitious target is supported by a combination of policy level actions and development projects.

In 2007 total emissions from the electricity subsector were 44,214 tCO₂-e and represents emissions from diesel-fuelled thermal plants. Renewable energy contributed 48% of total electricity requirements in 2007. However, by 2014, renewable energy sources including solar photovoltaic, wind and hydropower contributed only 26% of total electricity generation. This drop in renewable energy contribution was due to the reduction in hydropower contribution when 3 of the hydropower plants were destroyed by Cyclone Evan. This highlights the vulnerability of Samoa to extreme climatic events which are expected to be more frequent as a result of climate change.

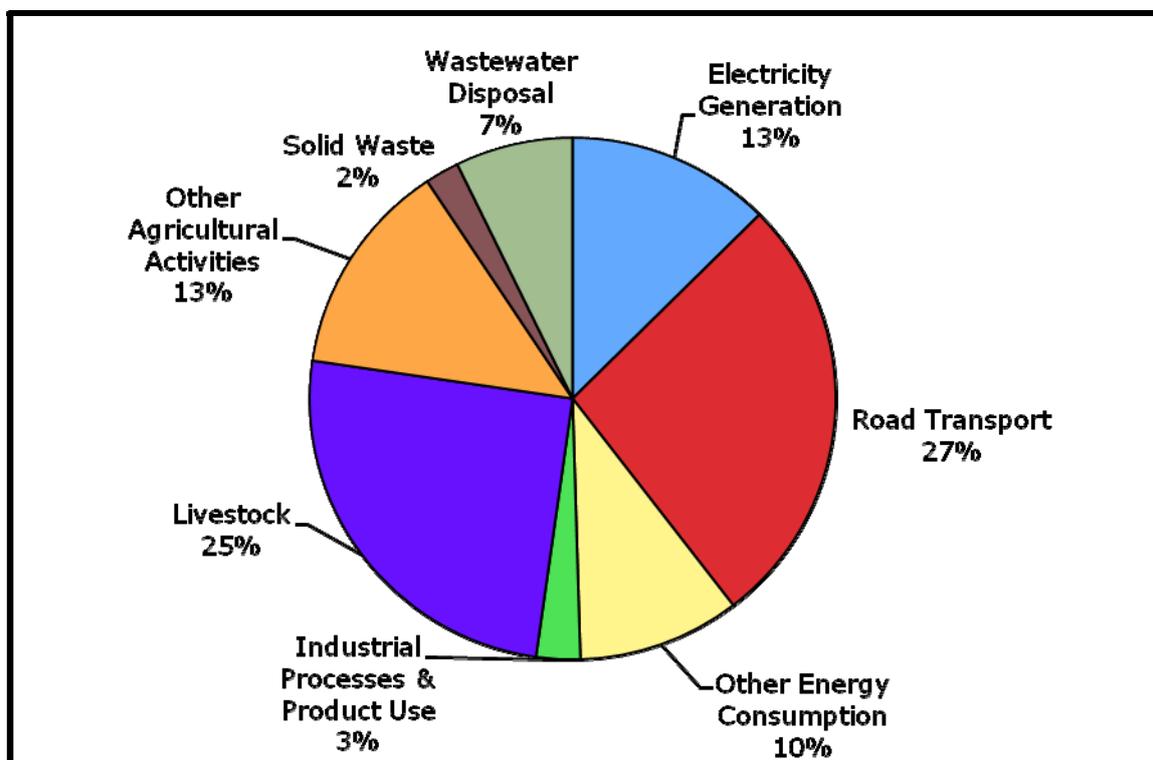


Figure 1: Samoa's sectoral GHG emissions (GHG Inventory, 2007)

The energy sector in Samoa is heavily reliant on imported fossil fuels to meet its needs. As the population grows GHG emissions are also expected to increase. Transportation and electricity generation are the two main contributors to emissions in the sector with the electricity sector contributing around 13% in GHG emissions in 2007.

Historically electricity generation has relied on two main sources, hydro and diesel-fuelled thermal power plants. Climate variability and oil price volatility have impacted electricity services in the past. Cyclones and other natural disasters have restricted the contribution of hydro power to the energy mix and in 2012; the destructive Cyclone Evan destroyed 3 of the 5 hydropower plants thereby reducing the capacity of this renewable energy source to the overall energy mix. In light of this and with a commitment to ensure energy security and reducing the

impacts of electricity generation on the environment, Samoa has taken steps to promote the use of renewable energy sources to displace fossil fuel for electricity generation.

KEY POLICY ACTIONS

An essential element to the realization of Samoa's commitment to climate change mitigation is having a favourable policy environment in place.

The *Samoa Energy Sector Plan 2012 – 2016* is a key guiding document for the energy sector with a theme of "sustainable energy towards energy self sufficiency". The Energy sector plan sets out a plan to deliver outcomes consistent with the Strategy for Development for Samoa with an overarching goal of increasing energy self sufficiency.

The *Electricity Act 2010* introduces key regulatory changes which have allowed the private sector to be involved in generating electricity and selling it back to the utility. This has allowed independent power producers (IPPs) to build and operate renewable energy power plants and sell electricity to the grid.

Other key policy drivers include the Greenhouse Gas Abatement Strategy, Climate Change Policy 2007 and the draft Energy Efficiency Act.

CAPITAL PROJECTS

Samoa has already undertaken and implemented a range of mitigation projects in the energy sector. These projects include various renewable energy projects for electricity generation as well as energy efficiency projects aimed at both supply and demand management. A combination of both renewable energy projects and energy efficiency measures is necessary to achieve the target as set out in the INDC. Significant donor assistance through grant financing has enabled the implementation of many of these projects. Future projects will need similar financing support.

Some of these projects include:

- Grid connected solar photovoltaic projects with a total installed capacity of 6MWp as of September 2015. This is a combination of both utility owned projects and IPPs and total capacity is expected to increase over the next couple of years;
- Wind Power - 550kW of installed capacity;
- Hydro Power – rehabilitation of 3.5MW hydro power plants destroyed by Cyclone Evan in 2012 as well as additional small run-of-river schemes;
- Bioenergy – 12MW of various projects aimed at utilizing biomass, biogas or alternative bioenergy source for electricity generation to be implemented by IPPs.
- Energy Efficiency – Projects aimed at controlling the importation of energy inefficient appliances such as product and labelling standards, retrofitting older and less efficient light bulbs with more efficient alternatives in the residential sector and other demand side management programs.

3. ADAPTATION

Samoa recognises that the adverse effects of climate change will have significant impact on the country particularly in sectors such as agriculture, coastal infrastructure, health, forestry, meteorology, tourism, and water. These sectors were prioritized in the National Adaptation

Programme of Action (NAPA)⁴ and adaptation projects in these sectors have been successfully implemented with external financial support. While the focus of Samoa's INDC is on Mitigation, Samoa highlights the need to build on work that has been undertaken to ensure actions that have been identified during the implementation of previous adaptation objects are addressed at a future stage.

The effects of climate change and climate variability in the short and long term will continue to impact Samoa and through the implementation of some of the adaptation projects, emissions reductions are also possible. As with mitigation activities, implementation of adaptation projects are heavily dependent upon external financial assistance from the international community. Building climate resilience, disaster risk reduction as well as adaptation projects in vulnerable sectors require significant external assistance and this has been highlighted through the prioritisation of climate change in national planning.

4. SUPPORT FOR IMPLEMENTATION

Samoa has relied heavily on external assistance to fund many of its renewable energy initiatives. While the introduction of IPPs has transferred some of the financial burden of capital investment onto the private sector, the government is still faced with the task of improving existing transmission and distribution infrastructure.

As the country moves towards a more diverse mix of generation technologies, more investment is needed to upgrade and maintain existing infrastructure. The use of intermittent technologies such as solar photovoltaic and wind also puts pressure on the grid to maintain stability of supply. Storage and grid improvements become a priority once all these projects are online which are also capital intensive. To meet the target as set out in the INDC, Samoa needs financial assistance from donors and development partners to implement proposed renewable energy projects and also improve the existing infrastructure and technologies.

Substantial progress has been made in achieving the target set out for the electricity sector through investment in renewable energy projects, energy efficiency programs and policy reforms. However, international support is necessary to ensuring the low emission pathway chosen by the electricity sub sector is achieved.

The potential for economy-wide emissions reduction is conditional on assistance provided to other sectors such as transport, agriculture, forestry and waste. These sectors have set in place plans and strategies to reduce emissions; however, implementation is a common problem across all sectors due to limited human, financial and technical resources. The transport sector which has the highest sectoral emissions in particular has a regulation in place to restrict emissions from vehicles to a certain level. However enforcement has not been possible due to a lack of technical capacity, technological capacity and financial resources. Enforcement of this regulation will have significant impact on reducing emissions from this sector.

⁴ The Samoa National Adaptation Programme of Action, 2005 (NAPA) was developed to identify key sectors with immediate adaptation needs.