MINISTRY OF WORKS, TRANSPORT AND INFRASTRUCTURE

2024
SAMOA ENERGY REVIEW REPORT

14th edition

This is the fourteenth review, covering January to December of 2024.

Acknowledgments

The Energy Policy Coordination & Management Division of the Ministry of Works, Transport and Infrastructure gratefully acknowledges the valuable technical support provided by the International Renewable Energy Agency (IRENA), which was possible as a result of project funding by the Government of the United Arab Emirates, in the preparation of the Samoa Energy Review 2024.

In particular, we extend our sincere appreciation to Mr. Aidan Kennedy for his technical guidance and hands-on support throughout the review process. His expertise contributed significantly to strengthening Samoa's national energy database, including enhancements to data management processes and the development of the Sankey diagram.

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Ministry of Works, Transport & Infrastructure

2024

SAMOA ENERGY REVIEW REPORT

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IRENA
International Renewable Energy Agency

MINISTRY OF
NATURAL RESOURCES
AND ENVIRONMENT

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FOREWORD

The Samoa Energy Review 2024 provides a comprehensive overview of the country's energy sector, highlighting key trends, developments, and challenges. Prepared by the Energy Policy Coordination & Management Division, this report serves as an important reference for policymakers, planners, and stakeholders.

This edition incorporates the most recent and verified data available, while also reflecting revisions to previous years where improved information has been obtained. This ensures that the Review remains a credible and authoritative source for national energy statistics.

The findings presented in this report support evidence-based decision-making and contribute to monitoring Samoa's progress toward national and international commitments, including Sustainable Development Goal 7 and the Nationally Determined Contributions (NDCs).

1. Sustainable Development Goal 7: ***"To ensure access to affordable, reliable, sustainable and modern energy for all".***

2. 2nd Nationally Determined Contribution: ***"reduce greenhouse gas (GHG) in the energy Sector by 30% by 2030 compared to 2007 levels."***

3. Pathway for the Development of Samoa 2021/22-2025/26: ***"To foster social harmony, safety, and freedom for all".***

4. Samoa Energy Sector Plan 2023/24-2027/28: ***"Sustainable and affordable energy supply for all".***

Earlier editions and publications of the Samoa Energy Review Reports can be accessed on the Samoa Ministry of Works, Transport & Infrastructure website:https://www.mwti.gov.ws at Energy - Ministry of Works, Transport & Infrastructure

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GLOSSARY

Table 1: Glossary

Available Capacity	It's the capacity that is always lower than the installed capacity of a Renewable Energy technology directly impacted by the average availability of its source. Example: Amount of Rainfall for hydropower, Number of sunlight hours for solar & etc.
Biogas	Energy is produced from the anaerobic digestion of farm waste, and kitchen waste for communities and household use in Samoa, also referred to as methane gas.
Biomass	Material that is derived from nature (trees, grasses, agriculture crops) that can be used for energy conversion, including biofuel. In Samoa biomass is mainly derived from wood waste and coconut residue (husks and shells) for outdoor cooking and heating(example: Umu).
End-use energy	The amount of energy consumed by final users. Excludes energy used or lost in the process of transforming energy into other forms and in bringing the energy to the final consumers.
Conversion	The process of transforming one form of energy into another (derived) form before final end use. Energy used in conversion is the energy content of fuels consumed as well as transformed by energy-producing industries. Examples include the generation of electricity from diesel fuel. Energy used in conversion also includes energy lost in the production, conversion, transmission and distribution of energy .
Crude oil	Naturally occurring mixture of liquid hydrocarbons under normal temperature and pressure.
Derated Capacity	The reduction in power generation of diesel generators overtime under certain environmental or operational conditions that can impact performance or longevity.
Domestic	Used in the sense of national (as opposed to foreign) rather than residential.
Domestic transport	Primarily made up of land, maritime and air transport within the country. Excludes International transport.
Installed capacity	The maximum amount of power that a diesel generator or renewable energy can produce or handle at any given moment.
Joule	Standard unit of energy in general scientific applications. One joule is the equivalent of one watt of power radiated or dissipated for one second.
Non-energy use	These are petroleum products that do not produce energy (e.g. bitumen for roads).
Petroleum	Generic term for all hydrocarbon oils and gases, including refined petroleum products.
Petroleum products	All hydrocarbons are used directly as fuel. These include Unleaded petroleum, dual-purpose kerosene, and automotive diesel oil, liquefied petroleum gas, and refined products used in non-energy production, bitumen and lubricants as included in the energy balance even if not used as fuel.
Primary fuels	Forms of energy obtained directly from nature. They also include non-renewable fuels such as crude oil; naturally occurring liquefied petroleum gas; methane; and renewable fuels such as wood, wind power and solar energy.
Production	The amount of energy generated or extracted from domestic sources. In the context of Samoa, this includes energy derived from traditional biomass (e.g., firewood), solar photovoltaic (PV) systems, wind, and hydropower. Samoa does not produce fossil fuels, so its energy production is limited to these renewable sources.

Imports	The quantities of energy products that have physically crossed Samoa's national territorial boundaries, regardless of whether customs clearance has occurred. For Samoa, this primarily includes petroleum fuel products such as Automotive Diesel Oil (ADO), Unleaded Petrol (ULP), Dual Purpose Kerosene (DPK), Aviation Gasoline (AVGAS), Liquefied Petroleum Gas (LPG), and lubricants.
Exports	Energy products that have physically crossed Samoa's national territorial boundaries to another country or territory.
Stock changes	This represents the difference between the opening stock levels (on January 1st) and closing stock levels (on December 31st) of energy products held within the national territory by producers, importers, and major consumers.This excludes stock movements in pipelines. *A stock build (increase in inventory) is shown as a negative number.A stock draw (decrease in inventory) is shown as a positive number.*
Domestic supply	`Production + Imports – Exports ± Stock Changes` This represents the total amount of energy available for use within the country. A stock build (increase in stocks) is subtracted. A stock draw (decrease in stocks) is added.
Transfer	The reclassification of energy products resulting from changes in product specifications or blending activities. For example, a transfer may occur when lubricant oil is blended with gasoline for use in two-stroke engines, such as outboard motors or grass cutters. These transfers adjust quantities between product categories but do not affect the overall energy balance. The net balance of interproduct transfers is zero.
Statistical differences	`Defined as Final consumption + Transformation use + Energy sector own use + Distribution losses – Domestic supply – Transfers` These differences arise because the components of the energy balance are often compiled from varied and independent data sources, leading to discrepancies. Additionally, the inclusion of stock changes held by large consumers on the supply side can introduce further inconsistencies. While statistical differences should ideally be close to zero, they are a common feature of energy balances and serve as an indicator of data quality and consistency.
Conversion	
Conversion Sector	This includes all activities where primary energy sources are transformed into secondary energy products, or where secondary energy is further transformed into other usable energy forms.
Auto-producer electricity plants	These are facilities that generate electricity primarily for the producer's own use, rather than for sale to the public or the national grid. These plants may be privately or publicly owned, and the electricity generated is typically used to meet the internal energy needs of a business, institution, or industrial operation.
Distribution Losses	
Distribution losses	This refer to the amount of energy lost during the transmission and distribution of energy products from the point of production or import to the point of final use. These losses occur due to technical inefficiencies such as heat loss, leaks, or evaporation.

TOTAL FINAL ENERGY CONSUMPTION	
Total final energy consumption is equal to the sum of the consumption in the end-use sectors. Energy used for transformation and for own use of the energy-producing industries is excluded. Final consumption reflects for the most part deliveries to consumers. International marine bunkers are not included in final consumption at the country level neither is international air transport.	
Agriculture and forestry	Covers deliveries to users associated with the agriculture and forestry sectors. For Samoa, energy consumption in these sectors is not applicable as Samoa lacks large-scale forestry and agriculture activities.
Fishing	Covers coastal and deep-sea fishing. Also covers fuels delivered to ships of all flags that have refuelled in the country (including international fishing) as well as energy used in the fishing industry
Industrial sector	Covers the manufacturing, construction, and quarrying sectors.
Public sector	Covers users mainly from the government, including government-owned and government-rented buildings, government hospitals, and the public works sector. Categorised energy use from the public sector includes electricity consumption in buildings, oil company sales to the government for power generation in selected areas (hospital, water, and off-grid power supply), and quarrying
Industrial sector	Based on the Samoa Energy Balance, this sector primarily uses electricity and petroleum products (especially diesel) for activities such as manufacturing, food processing, and construction.
Government Sector	The government sector in Samoa is a significant consumer of energy, primarily through the operation of public buildings, street lighting, government fleets, hospitals, and schools.
Commercial sector	Covers users from wholesale/retail and recreation, finance, insurance, real estate and other commercial-type services. Categorised energy use from the commercial sector includes electricity consumption in buildings, and direct sales by oil companies to the commercial sector
Community and Social Sectors	Mainly covers schools, religious organisations and NGOs. Categorised energy use from the community and social services sector covers electricity consumption in buildings, and fuel use (LPG, biomass and DPK) for cooking and lighting.
Residential Sector	Generally covers users from households. Categorised energy use from the residential sector includes electricity consumption in buildings, and fuel (LPG, biomass and DPK) use for cooking and lighting.
Transport sector	Covers all transport activity (in mobile engines) regardless of the economic sector to which it is contributing. The transport sector is broken up into road, marine, and air (domestic flights only) transport.

CHAPTER ONE

Chapter 1

ENERGY OVERVIEW

1.1 Total Primary Energy Supply (TPES)

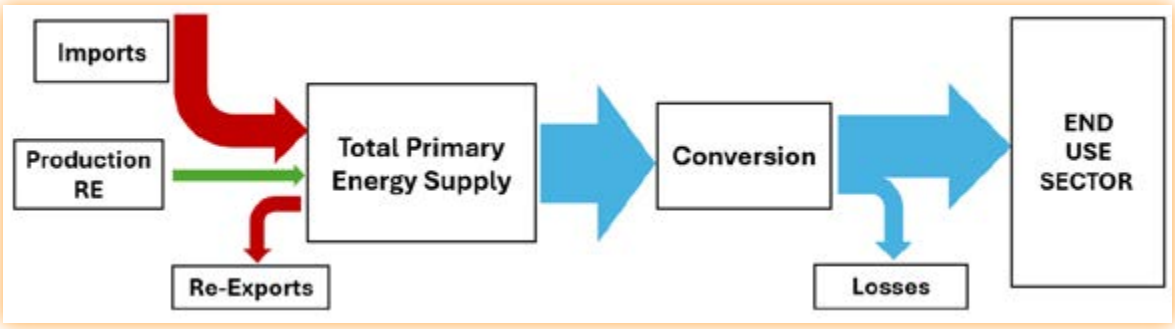


Figure 1: *Total Primary Energy Supply Flowchart*

The Total Primary Energy Supply (TPES) is the energy available to meet the country's demands, calculated using the formula given above. For distinction, the TPES includes losses due to conversion as illustrated in the flow diagram above.

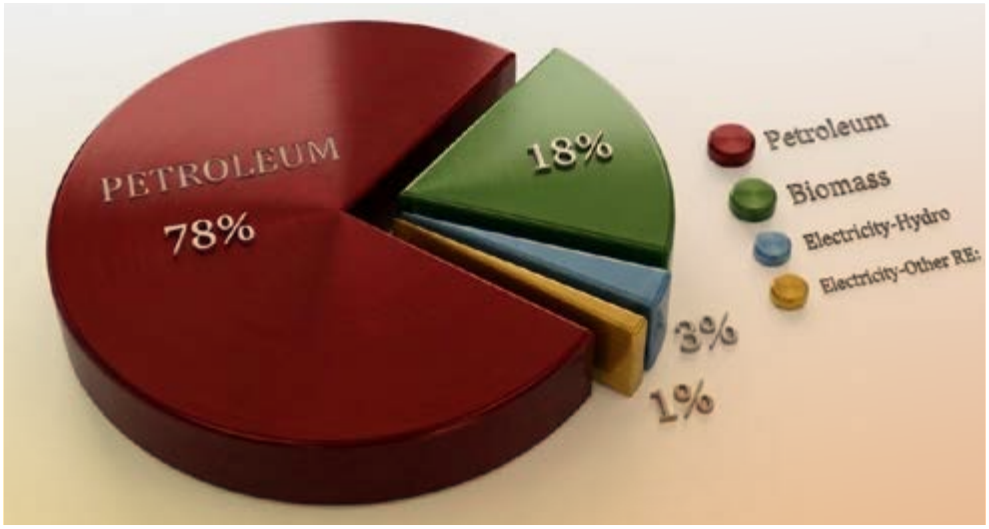
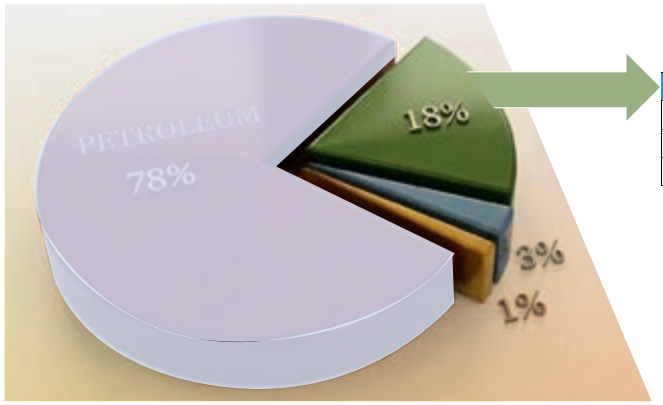


Figure 2: *Total Primary Energy Supply for 2024*

Samoa's total primary energy supply is estimated to be more than 6000 TJ, reflecting a 6% increase from 2023's 5787.8 TJ. Petroleum remains the dominant source, accounting for approximately 78%, a 1% increase from the previous year. This indicates growth in imports of fossil fuels.

1.2 Total Energy from Renewable Energy

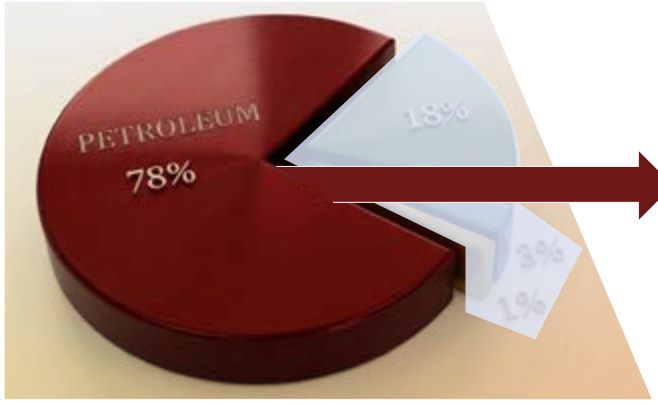


Biomass Use	TJ
Residential	1084
Commercial	4.35
Agriculture and Fishing	0.03

Figure 3: *Total Energy from Renewable Energy*

Samoa's total renewable energy supply is estimated at 1088.38 TJ, representing 22% of the overall energy. Biomass, used mainly for heating and cooking, constitutes about 18% (1084 TJ), with most consumption occurring in the residential sector and minimal use in the commercial sector as stated in table 1 above. Renewable electricity makes up 4% of the total 18%, with 3% generated from hydro sources and 1% from solar and wind.

1.3 Total Energy from Petroleum



Breakdown of Petroleum Energy Supply By Sector	TJ
Electricity Generation	1,683.30
Transport (Land and Marine)	2,410.20
Commercial	370.1
Industrial	0.03
Residential	234.5
Fishing	47.72
Non-Energy Use	83.3

Figure 4: *Total Energy from Petroleum*

Petroleum products accounted for approximately 78% (about 4,830 TJ) of Samoa's Total Primary Energy Supply (TPES). With respect to the 78%, about 50 % supplied to the transport sector, 35 % from electricity generation, 7% supplied the commercial, 5% served the residential sector, and about 1% was allocated to the fishing sector and very small amount is supplied for industrial.

1.4 Opportunities and Developments

Table 2: Energy Projects & Developments

Project/Company	Location	Technology	Operators	Installed Capacity	Year Commissioned	Plan year of Implimentation	Status
Asian Develoment Bank	Alaoa	Multi-pupose Flood control Dam	MWTI	600kW	-	still under discussion	-
IMPRESS	Eleele Fou	Solar Roof Top	MNRE, EPC	20 kW solar pancls, 40 kW battery storage, and two 22kW Victron charging units	Jun-24	2024	Completed
ADB	Fiaga	Solar	EPC	25 MW + 25 MW-2h BESS	ADB and EPC TAS signed 2024	2025	In-Progress
SPREP & MNRE	Afulilo Dam	Floating Solar	EPC	3MW + 1MW	Project proposal 2024	-	In-Complete
E-Energy	Faleolo	West Coast Solar Expansion	IPP, EPC	1MW	2024	Jun-24	Completed
Samoa Tyre Recycle	Tafaigata	Pyrolysis	IPP, EPC	5MW	2024	2025	In-Progress
Waste to Energy	Tafaigata	Pyrolysis	IPP, EPC	5MW	2024	2025	In-Progress
Apolima Hybrid Solar Upgrade	Apolima Tai	Hybrid Solar System	EPC	24kW + 70kWh (BESS) + 18kW (Diesel)	NECC Approved 2024	2026	In-Progress
Australia Infrastructure Financing for the Pacific	All Islands	EPC Offgrid Stand alone Solar + BESS	EPC	280kW + 600kWh BESS	Finalising Proposal - 2024	2026	In-Progress
EPC	Salelologa	Solar + BESS	EPC	6MW Solar + 10MWh BESS	Awaiting Approval NECC 2024	2026	In Progress

1.5 Samoa Energy Balance 2024

The national energy balance has been presented in previous reviews, as shown in **Table 2**. In addition, a Sankey diagram is provided in Figure 2 to clearly illustrate the flow and magnitude of both energy supply and end-use consumption.

Table 3: Samoa Energy Balance 2024

Samoa Energy Balance 2024 Unit Tera Joules	Oil	FO	IDO	ADO	ULP	DPK	AVGAS	LPG	Lubricants	Bitumen	Hydro	Solar PV	Wind	Biomass	Coconut Residues	Fuelwood & Wood Waste	Biogas	Solar Thermal	Electricity	Electricity Grid	Electricity off grid	Total
Production	0										163.11	68.04	0.34	1,088.30	282.4	805.7	0.22	3.01				1,322.80
Imports	5,563.50	0	0	2,878.80	1,882.40	569.4	0	149	14.1	69.9												5,563.50
Exports	-38.1	0	0	-28.7	-7.8	0	0	-1.5	-0.1	0												-38.1
International marine bunkers	-61.4	0	0	-61.4	0	0	0	0	0	0												-61.4
International aviation bunkers	-356.9			0	0	-356.9	0	0	0	0												-356.9
Stock changes [3]	-297	0	0	34	-115.9	-202.9	1.2	-13.4	0	0												-297
TOTAL PRIMARY ENERGY SUPPLY	4,810.00	0	0	2,822.70	1,758.70	9.6	1.2	134.1	14	69.9	163.1	68	0.34	1088.3	282.4	805.7	0.22	3.01	0	0	0	6,132.90
Transfers																						0
Statistical differences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.5	-0.5	0	-0.5
Transformation processes	-1,683.30	0	0	-1,683.20	0	0	0	0	0	0	-163.1	-68.04	-0.34	0	0	0	0	0	847.2	847.2	0	-1,067.60
Electricity plants [3]	-1,683.30		0	-1,683.20	0						-163.1	-68.04	-0.34	0			0		847.2	847.2	0	-1,067.60
Co-generation plants [3]	0																					0
Petroleum refining	0																					0
Energy industries own use [3]	0																		-19.5	-19.5		-19.5
Losses [4]	0																		-129.3	-129.3		-129.3
TOTAL FINAL ENERGY CONSUMPTION	2,147.50	0	0	1,139.50	1,758.60	9.6	1.2	134.8	14	69.9	0	0	0	1,088.30	282.4	805.7	0.22	3.01	698	698	0	4,936.80
Industry	0.03	0	0	0	0	0.03		0	0					0	0	0	0	0	41.34	41.34	0	41.4
Transport	2,410.20	0	0	805.73	1603.31	0	1.19	0	0	0				0	0	0	0	0	0	0	0	2,410.20
Road	2,296.30	0	0	692.96	1,603.30	0			0					0			0		0			2,296.30
Domestic aviation	1.2					0	1.2		0										0			1.2
Domestic navigation	112.8	0	0	112.77	0				0					0			0		0			112.8
Other	653.4	0	0	333.73	155.3	9.5	0	154.8	0	0	0	0	0	1088.3	282.4	805.7	0.22	3.01	656.6	656.6	0	2,401.40
Residential	234.5				115.01	7.24		112.28						1,084.00	281.6	802.3	0.01	0.01	238.84	238.84	0	1,557.30
Commercial and public services	370.1	0	0	322.31	4.15	2.14	0	41.54						4.35	0.78	3.39	0.18	3	417.79	417.79	0	795.3
Commercial	370.1		0	322.31	4.15	2.14		41.54	0					4.16	0.78	3.39	0	2.98	248.23	248.23	0	625.5
Community, Social Services & Government	0			0	0	0		0	0					0.18	0	0	0.18	0.02	169.562	169.56	0	169.8
Agriculture and forestry	0			0										0.03	0	0	0.03		0		0	0.035
Fishing	47.72			11.42	36.15	0.15			0					0	0	0	0					47.7
Other non-specified	0.99							0.99														1
Non-energy use	83.8								14	69.9												83.8

Figure 5 shows the Energy Production and Supply described in **Table 2**: the indigenous production refers to energy generated from Renewable Energy sources, while imports include petroleum products such as ADO, ULP, and DPK. The energy not used domestically, along with stock changes and losses, are deducted from the sum of Indigenous production and Imports. Consequently, the final energy supply amounts to **4,936.8 TJ.**

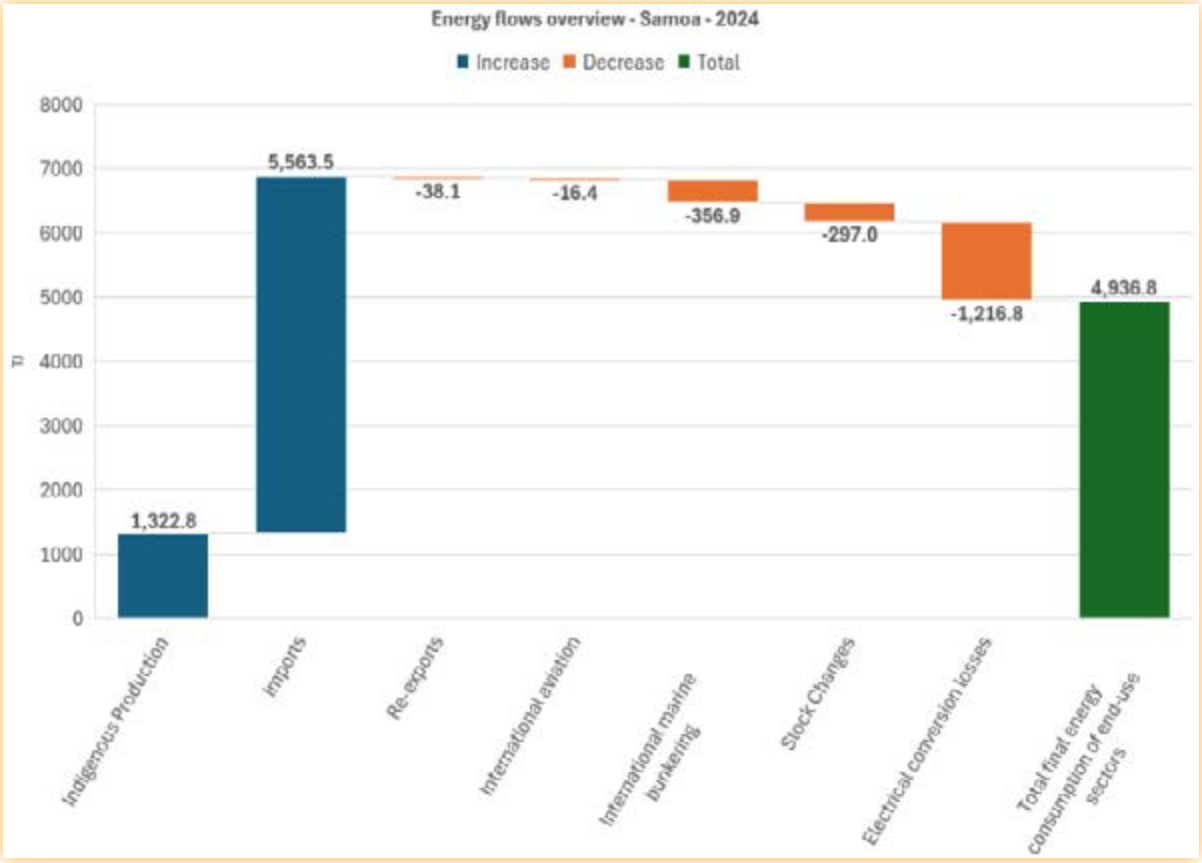
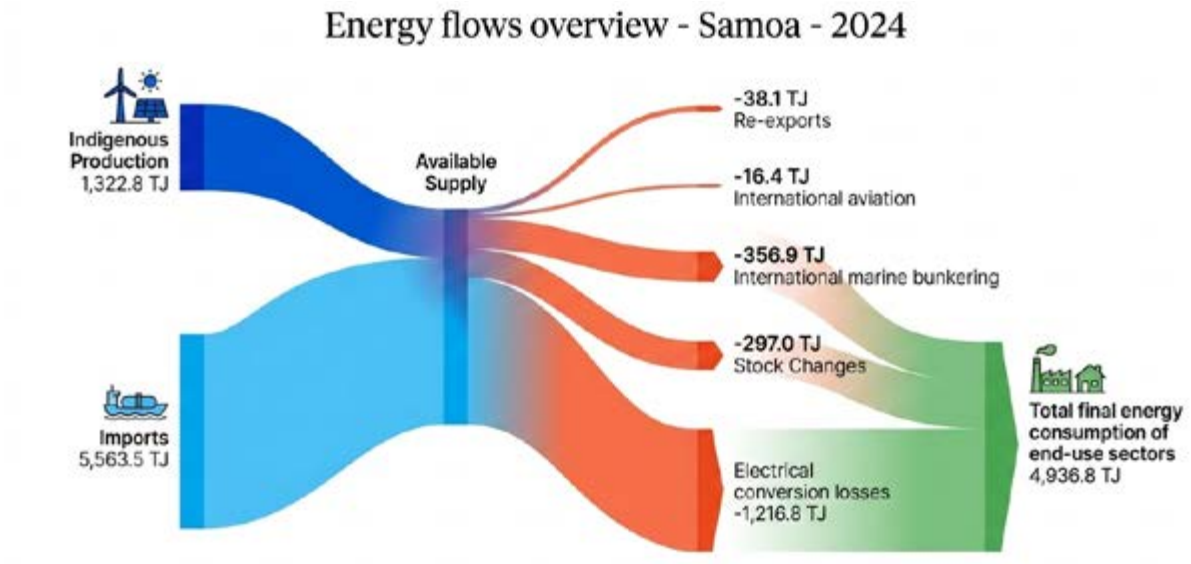


Figure 5: *Waterfall Chart of Samoa's Energy Overview 2024*



1.6 Samoa Energy Sankey diagram 2024

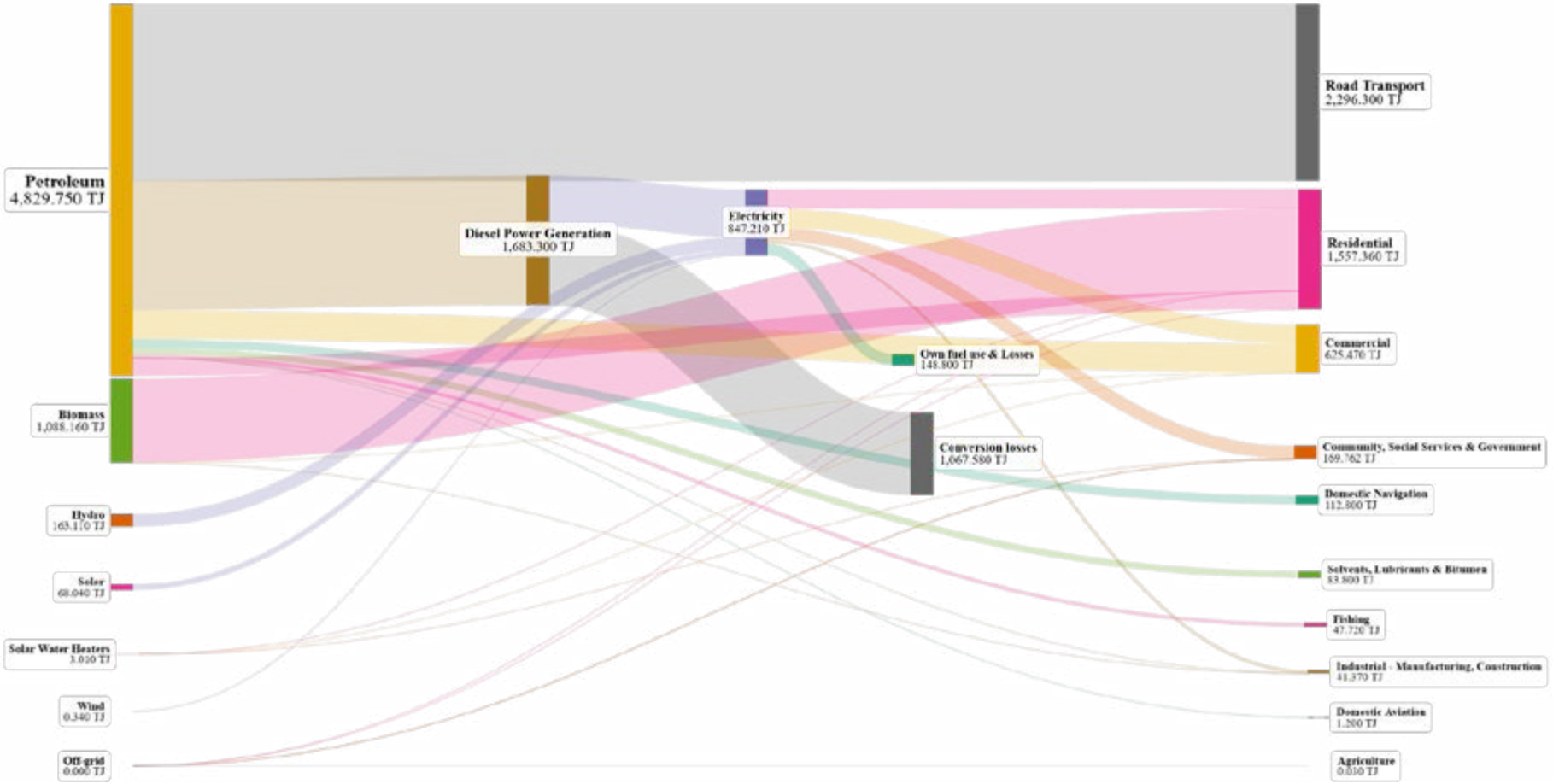


Figure 6: *Sankey diagram of energy flows in Samoa for 2024*

CHAPTER TWO

Chapter 2

RENEWABLE ENERGY

Renewable energy plays a vital role in Samoa's plan to reduce dependence on imported fossil fuels and enhance energy security. Samoa's main renewable energy sources include solar, hydropower, wind, biomass, and biogas. Over the past years, Samoa has expanded these sources through government initiatives, donor-funded programs, and private sector investments.

2.1 Hydro Energy

Hydropower is a form of renewable energy that generates electricity by utilizing the kinetic energy of flowing or falling water. This is achieved through infrastructure such as dams or diversion structures, which channel water to drive turbines

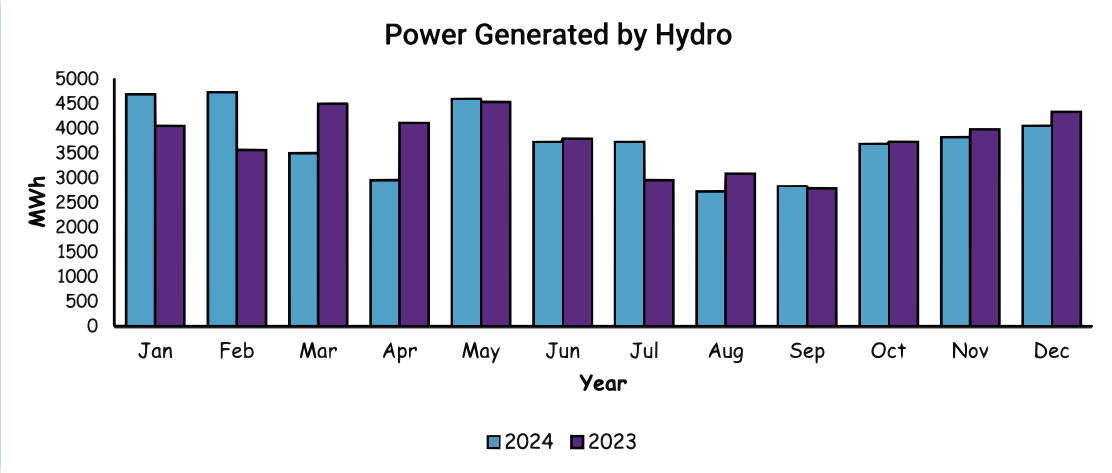


***Figure 7**: Hydro Generation Trend*

Hydro generation in 2024 demonstrated improved stability compared to 2023, with production remaining within a narrower range despite mid-year fluctuations. Output peaked in February 2024 at approximately 4,738 MWh before declining to a low point in August (2747.091 MWh), followed by a steady recovery through the remainder of the year. In comparison, 2023 recorded few peak months, such as March (4,521 MWh), May (4542.6 MWh), and December (4,340 MWh), but also showed more pronounced variability, including significant drops in February (3,568 MWh) and July (2,961 MWh). Overall, 2024 reflects a more consistent hydro generation, even though generation has decreased by 0.7% compared to 2023.

2.2 Solar Energy

Solar photovoltaic (PV) systems harness sunlight by converting solar energy—produced by nuclear fusion in the sun—into electricity using semiconductor materials. These systems are increasingly used across the country for both electricity generation and solar water heating.

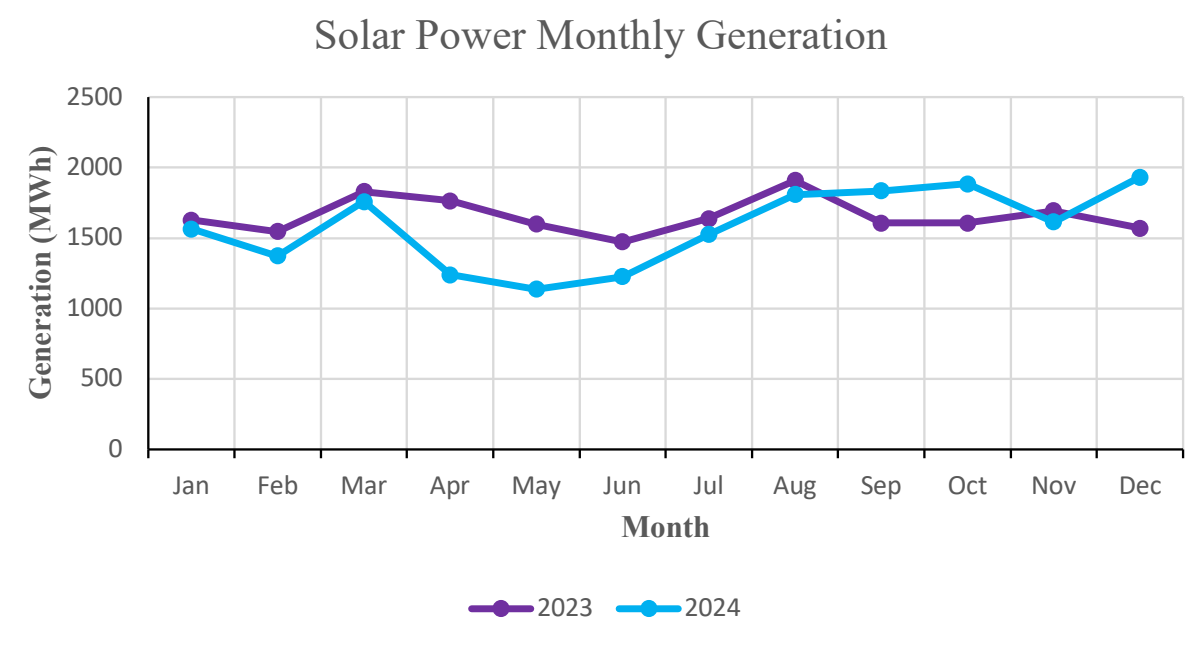


***Figure 8**: : Solar Generation Trend*

Solar generation in 2023 is generally higher and more consistent compared to 2024. In contrast, 2024 exhibited greater variability, with noticeable dips early in the year, particularly in April (~ 1200 MWh), followed by a strong recovery from September to December (~1800 to 1900 MWh). The peak production occurred in December 2024 (~1900 MWh), exceeding the production in December 2023(~ 1500 MWh). Despite this year-end recovery, overall solar production declined by roughly 10% (from 2023 to 2024).

2.3 Wind Energy

Wind energy in Samoa remains in the early stages of development, with resource assessments showing limited but promising potential in select coastal and highland areas. As Samoa continues to diversify its renewable energy mix, wind power is viewed as a potential complementary source that could support energy security—especially when combined with solar and hydro resources.

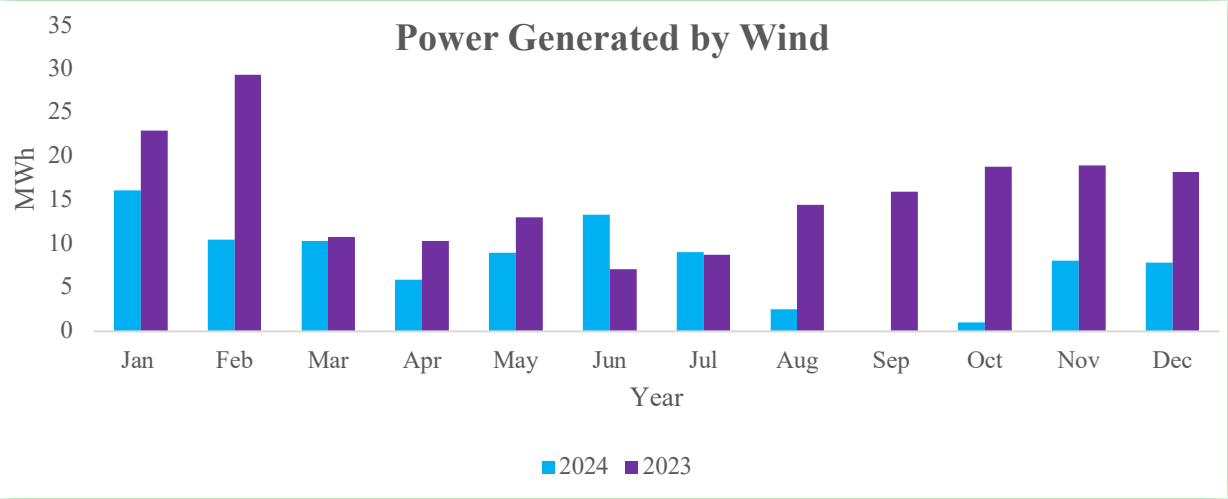


***Figure 9**: Wind Generation Trend*

Based on Figure 9, the wind generation in 2024 was significantly lower and more variable compared to 2023. The highest output in 2024 occurred in January (16.2 MWh) and June (13.4 MWh), while production dropped to near zero in September and October. In contrast, 2023 showed consistently higher production throughout the year, with peaks in February (29.4 MWh) and November (19 MWh), and no months with negligible output. Overall, 2024 experienced reduced and more erratic wind generation, likely reflecting seasonal changes and lower wind speeds, whereas 2023 maintained stronger and more stable wind energy production.

2.4 Biomass Energy

Biomass in Samoa is primarily used for cooking and heating, especially in rural areas. It consists of organic materials such as firewood, crop residues, and animal waste. Firewood remains the most common form of biomass fuel, often collected locally and used in traditional open-fire stoves called umu. Despite the availability of modern energy sources, biomass continues to play a vital role in meeting basic energy needs, especially in communities with limited access to electricity or alternative fuels.

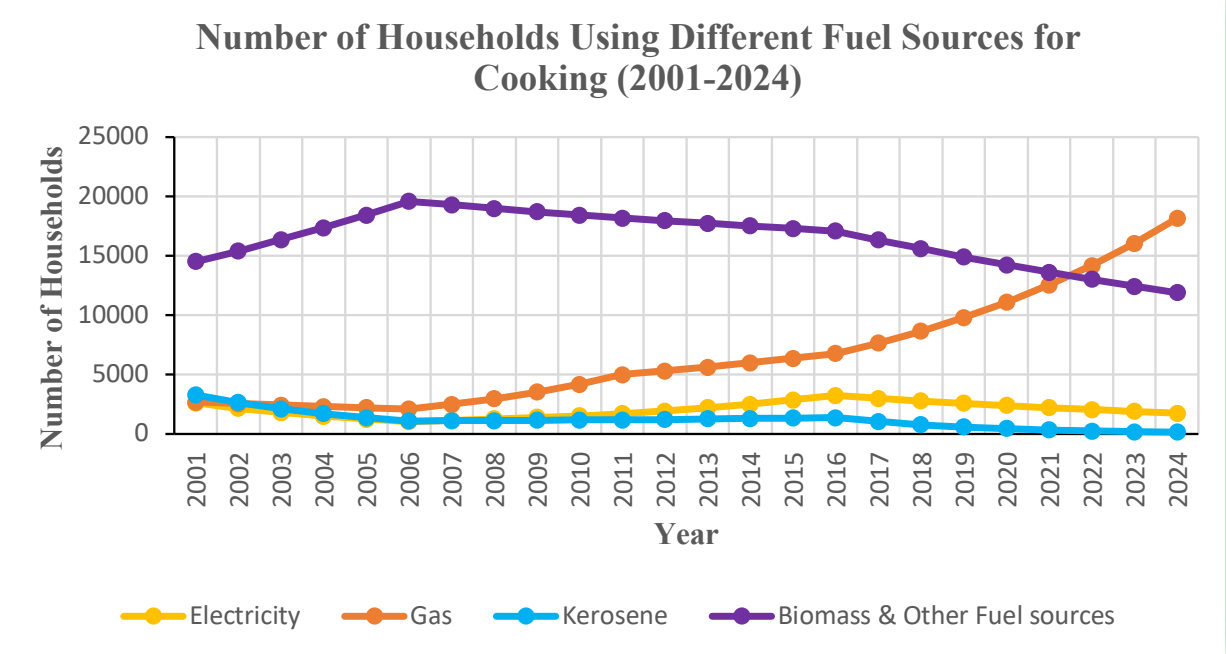


***Figure 10**: Number of Households cooking fuel projection*

The chart shows a clear transition in household fuel consumption from 2001 to 2024. LPG use has increased sharply and is now the main fuel for most households, while kerosene has almost disappeared. Biomass and other traditional fuels show a slow but steady decline. Overall, households are shifting away from older fuel sources and moving toward cleaner and modern practices like LPG and electricity.

2.5 Biogas Energy

Biogas is a renewable energy source primarily used for cooking and heating. It is produced through the anaerobic digestion of organic materials—mainly organic waste. This process breaks down the waste and releases a mixture of gases, primarily methane (CH4). The methane content makes biogas a valuable fuel for household and small-scale energy applications, supporting waste-to-energy initiatives and contributing to sustainable energy development.

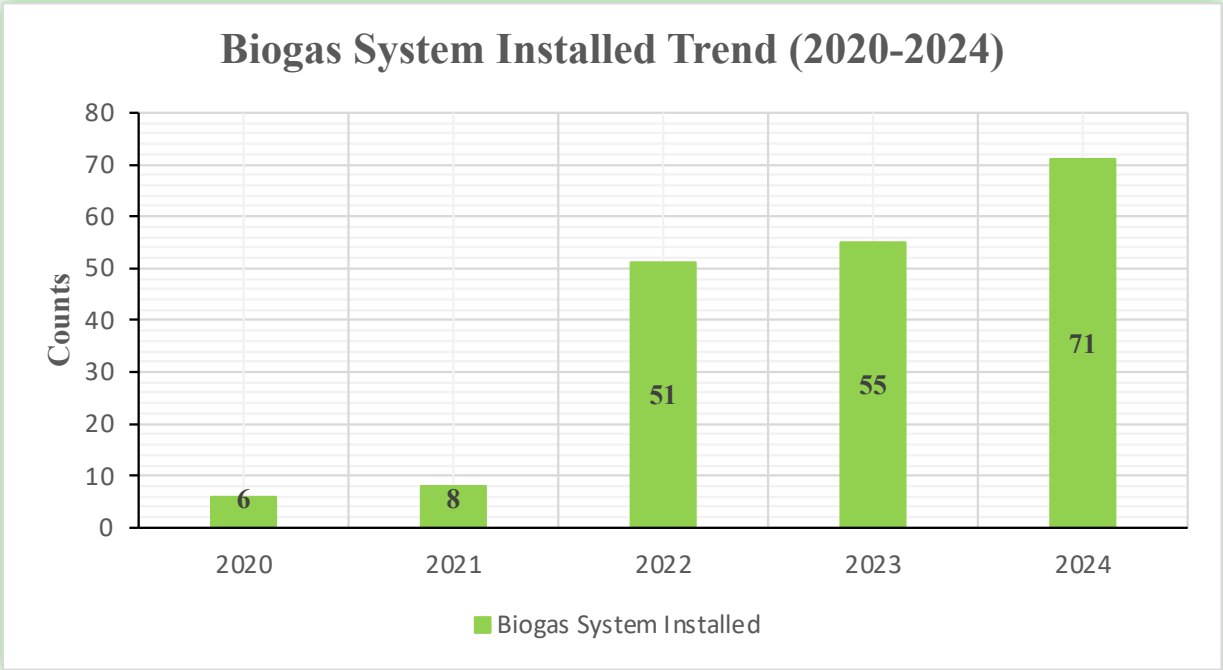


***Figure 11**: Biogas Systems Installed Trend*

The chart shows a trend of installed biogas systems (2020-2024). Installed biogas systems peaked in 2022 due to the resumption of delayed post-COVID projects. As of 2024, 16 new biogas system installations bring the cumulative total to 71 systems installed since 2010. Assuming all systems are operational and running at optimal capacity, the total energy produced by biogas systems in 2024 is estimated at approximately 288,700 MJ. This represents an increase of about 62,000 MJ compared to 2023 (227,000 MJ).

2.6 Opportunities & Developments 2024

Solar & Storage Expansion

- Green power (IPP) launched a major upgrade to a solar power station, making it the first integrated solar-storage facility in the South Pacific, boosting capacity in June 2024. The project is worth $1.5 million, which is to renovate an aging solar power station and add 5 MW of upgraded solar capacity with 2 MW of batteries.

Solar Energy Storage (Battery) Project

- Under SROS-Environment & Renewable Energy Projects, this is an ongoing project dated from 2022 to 2026, which focuses on developing a nickel-iron prototype battery based on Edison's design for the effective storage of solar energy and is scalable to assist Samoa's energy needs.

Biogas Compression Trial

- This project is handled by the SROS-Environment & Renewable Energy Division to trial and progress biogas technology initiated under IMPRESS to compress and store biogas into gas tanks for ease of use and open up more business avenues for biogas operators. The project is funded by UNDP and MNRE, and the project period is 2023-2025.

Solar-powered EV charging Station

- The Government, through MNRE, held the official opening of Samoa's first solar-powered EV charging station at Eleele fou in June 2024. The USD$ 240,000 facility features 20 kW solar panels, 40 kW battery storage, and two 22kW Victron charging units. The project was carried out with the support of donor partners such as the Global Environment Facility (GEF), UNDP, and Enviroearth.

Biogas Systems & Solar lights Project

- The Government of Samoa continues to distribute Biogas systems and solar lights to the community through the MNRE Renewable Energy Division, fully funded under IMPRESS, ISA & etc.

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CHAPTER THREE

Chapter 3

ELECTRICITY

Samoa continues to generate electricity mainly from a mix of renewable and diesel. The Electrical Power Corporation is responsible for generating, distributing, and supplying electricity to households and businesses. Electricity coverage is about 98.3% of Samoa's population, according to the 2021 census (Samoa Bureau of Statistics, 2022).

3.1 Electricity Sources & Generation Overview

The overview of the electricity mix from RE sources such as hydro, solar, and wind, as well as diesel generation. It also outlines the losses from different sources and the total power into the grid.

The electricity mix of Samoa feeds the National grid that supplies the End-use sectors as shown in the chart below.

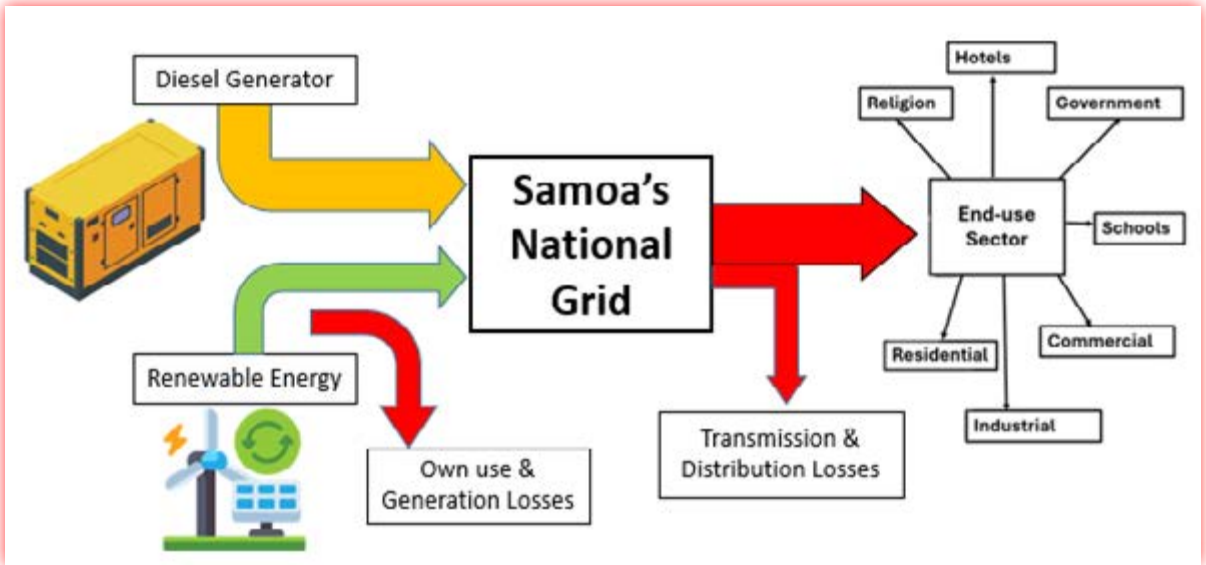

***Figure 12**: Samoa Electricity Flowchart*

Table 4: Electricity Generation Overview

Annual Electricity Generation	Units	2023	2024
Power generated by Diesel (thermal)	GWh	125.70	154.97
Power generated by Hydro	GWh	45.60	45.31
Power Generated by Solar (EPC)	GWh	3.10	2.84
Power Generated by Wind	GWh	0.19	0.09
IPP - Solar	GWh	16.64	15.92
Net-metering Solar (SPREP)	GWh	0.13	0.13
Total power Generated	**GWh**	**191.35**	**219.27**
Generation losses by Sources	**Units**	**2023**	**2024**
Diesel(Thermal)	GWh	4.50	4.97
Hydro	GWh	0.33	0.39
Solar (EPC)	GWh	0.05	0.048
Wind	GWh	0	0
Total Generation Losses	**GWh**	**4.8766424**	**5.40749284**
Total Distribution Losses	**GWh**	**15.936579**	**22.17247029**
Total Annual Losses	**GWh**	**20.8132214**	**27.57996313**
Total power sent out	**GWh**	**171.79**	**186.16**

The total generation in 2024 (about 220 million kWh) has increased by 14.6% compared to 2023. The RE injection has declined by 5%, and diesel generation continues to increase. Additionally, after offsetting losses, the power sent to communities and electricity end-use totaled about 186 million kWh, an increase of 8.36% from 2023's total.

Table 5: Renewable Electricity vs Diesel Electricity

RE Electricity %	34.3%	29.3%
Hydro	23.8%	20.7%
EPC Solar PVs	1.6%	1.3%
Wind	0.1%	0.0%
IPP - Solar	8.7%	7.3%
Net-metering Solar (SPREP)	0.07%	0.06%
Diesel Generation %	**65.7%**	**70.7%**

Renewable electricity production has declined by 5% relative to 2023. EPC attributes this decline in renewable energy (RE) to various factors, including environmental conditions, seasonal weather changes, reduced system capacities, maintenance activities, and expansion operations. These fluctuations in RE generation has led to higher diesel generation to meet the demand.

The table below displays electricity sources by island and their installed & available (de-rated) capacities as of the year 2024.

Table 6: Electricity Sources by Island & Capacities

Electricity Sources	Installed Capacity(kWh)	Available Capacity(kWh)
Diesel (Thermal)	41938	33200
Upolu	30320	24800
Savaii	11618	8400
Hydro	15640	15353
Upolu	15440	15203
Savaii	200	150
Solar	3183.6	3133.6
Upolu	2920	2920
Savaii	250	200
Apolima Island	13.6	13.6
Wind	550	275
Upolu	550	275
IPP-Solar		
Upolu	10220	10220
Net-metering Solar		
SPREP	100	100

3.2 Total Energy from Petroleum

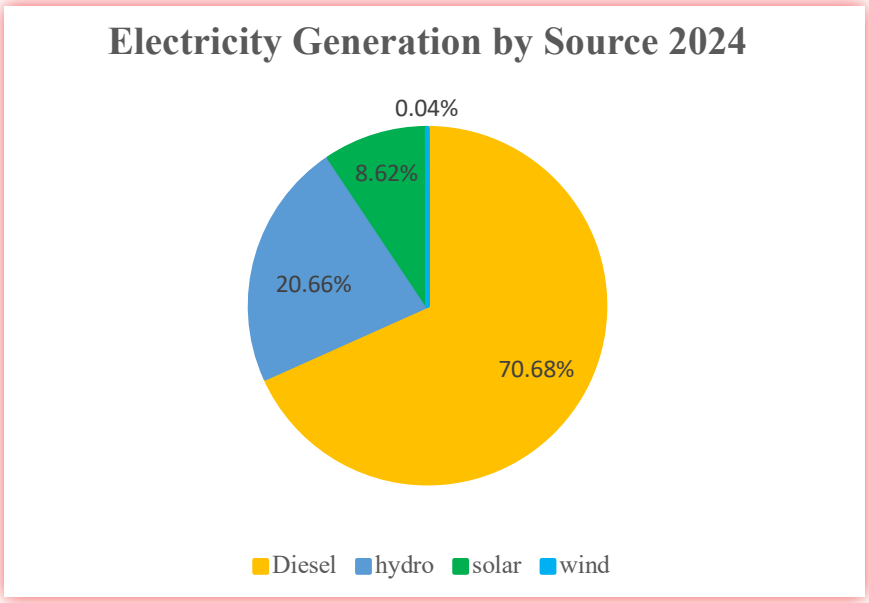

***Figure 13**: Breakdown of Electricity Generation by Sources 2024*

In 2024, diesel remains the dominant source of electricity, accounting for more than two-thirds of total generation. Hydropower remained the strongest renewable contributor, producing approximately 45 million kWh. Solar generation declined compared to 2023, while wind power remained minimal, contributing only about 0.05% of total electricity production (94 MWh).

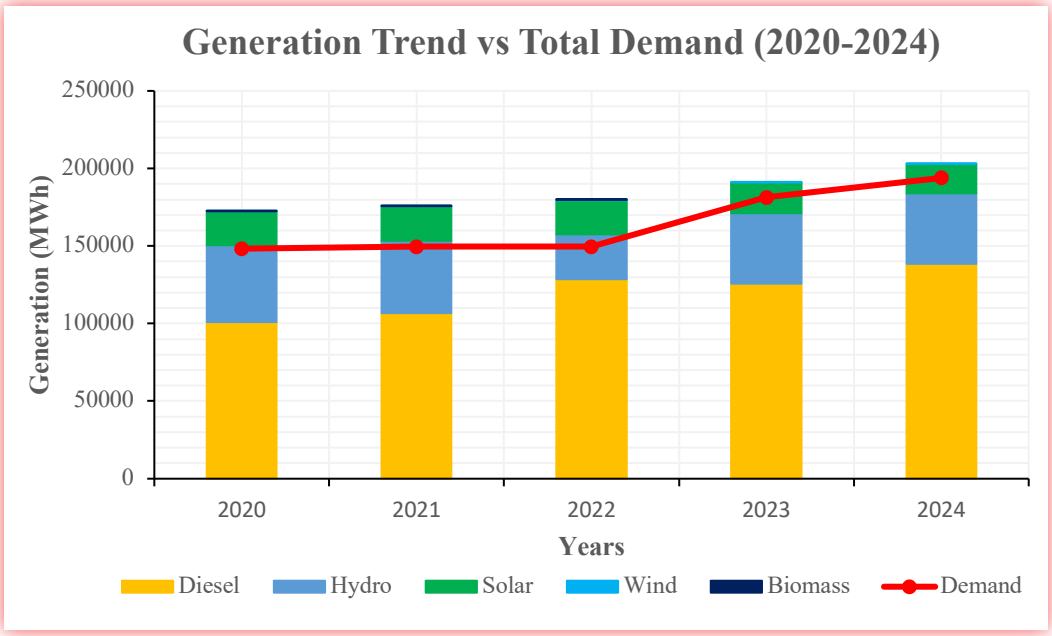

***Figure 14**: Annual Generation vs Total Demand Trend*

The 5-year trend of electricity generation shows a clear and steady increase from 2020 to 2024. During this period, Samoa's electricity system experienced rising demand, reduced solar output, and fluctuating hydro generation, leading to greater reliance on diesel. Total electricity generation increased by approximately 17%, rising from about 172 million kWh in 2020 to around 220 million kWh in 2024.

Over the same period, the total electricity demand increased even more sharply by about 30%, from 148 million kWh in 2020 to 193 million kWh in 2024.

3.3 Electricity Consumption

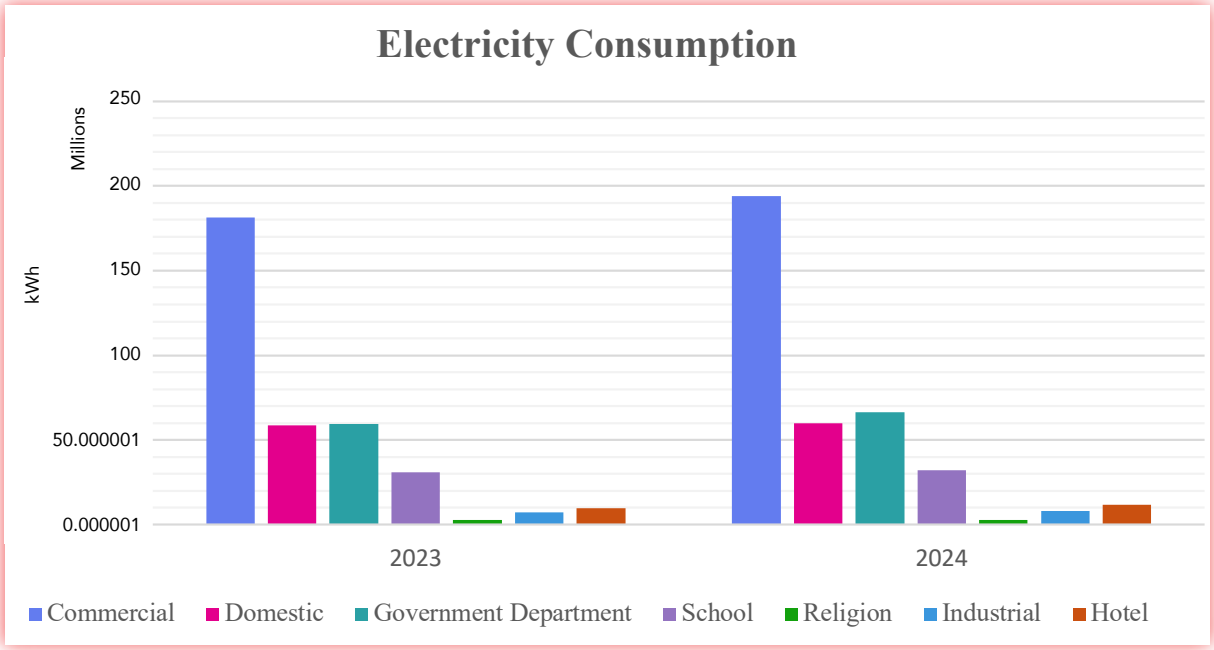

***Figure 15**: Electricity Consumption by Sector*

As shown in the chart above, electricity consumption increased across all major consumer sectors compared to 2023. The commercial sector recorded a strong rise of nearly 7%, while government departments saw an almost 12% increase, indicating expanded operations and public service delivery. Hotels experienced the most significant growth at over 17%, driven by heightened tourism activity mostly likely in relation to Samoa hosting CHOGM. Industrial and school sectors also showed moderate increases, highlighting continued development in manufacturing and education. Domestic household consumption rose slightly by about 2%, suggesting stable but gradually increasing residential demand. Overall, the upward trend across all sectors underscores expanding energy needs and increased activity throughout the economy.

3.4 Opportunities & Development

Renewable Developments:

- ADB-supported Solar & BESS Project: EPC signed an agreement with ADB to develop solar PV and battery energy storage systems (BESS) on both Upolu and Savai'i. The project is designed to add up to 40 MW of solar capacity and 40 MWh of battery storage.

- IPP Solar Farms Expansions: IPPs such as Green Power, Solar for Samoa, and Sun Pacific undergo farm expansion to strengthen and support RE targets and goals.

- IPP tenders: EPC issued a call for Expressions of Interest (EOI) for IPPs to develop 2 Solar & BESS Renewable Energy Generation Facilities (REGF)

Infrastructure Development & Grid Upgrades:

- SCADA Servers Upgrades: Procurement of new SCADA servers to improve grid management and monitoring.

- Power Lines Relocation: EPC continues to relocate power lines and upgrade infrastructure to support government road widening projects.

- Energy Transition Master Plan (2024-2034): EPC is working on a long-term plan to increase grid resilience to accommodate more renewable generation and reduce GHG emissions.

Internship & Apprenticeship Scheme:

- This ongoing program focuses on providing internships for scholarship students during breaks at universities and other educational institutions. It also partners with local and international universities to enhance research and professional development opportunities.

Partnership with APTC for training Opportunities:

- An MOU was signed on March 17th, 2023, as part of a broader initiative involving other government institutions. This partnership aims to provide training for EPC staff members in various areas, including construction, work health and safety, and digital literacy, to enhance their skill sets.

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CHAPTER FOUR

Chapter 4

PETROLEUM

Samoa's petroleum sector is vital to the country's energy supply and economic activity. As there is no local oil production, all petroleum products are imported and distributed mainly by Petroleum Products Supplies (PPS) through storage facilities at Matautu Wharf. The sector supports key industries such as transport, aviation, and electricity generation.

4.1 Petroleum Price

The petroleum retail prices ($/Ltr) in Samoa are regulated and adjusted regularly in response to changes in international oil prices, shipping costs, and foreign exchange rates. Therefore, every month the fuel cost fluctuates, reflecting the impact of global market trends on Samoa's economy. The table below provides a summary of the fuel costs throughout the year.

Table 7: Price Summary for 2024

Fuel Type	Average Price (Sene/Litre)	Highest Price (Month)	Lowest Price(Month)
ULP	317.40	346 (Jun-Jul)	281 (Nov)
ADO	329.00	352 (Apr)	287 (Nov)
DPK	289.75	308(Apr)	251 (Nov)

ULP (Unleaded Petrol) prices increased gradually until peaking in mid-year (June-July) and followed by a decline in the second half, fluctuating between 281-346 sene/Litre.

- ADO (Automotive Diesel Oil) showed the sharpest early-year rise with the highest in April (352sene/Litre) and the lowest price in November (287sene/Litre).

- DPK (Dual Purpose Kerosene) showed the largest percentage decline, with prices remaining stable around 305 sene/L. A notable fall began after mid-year, hitting 251 sene/L in November, before slightly recovering to 261 sene/L in December.

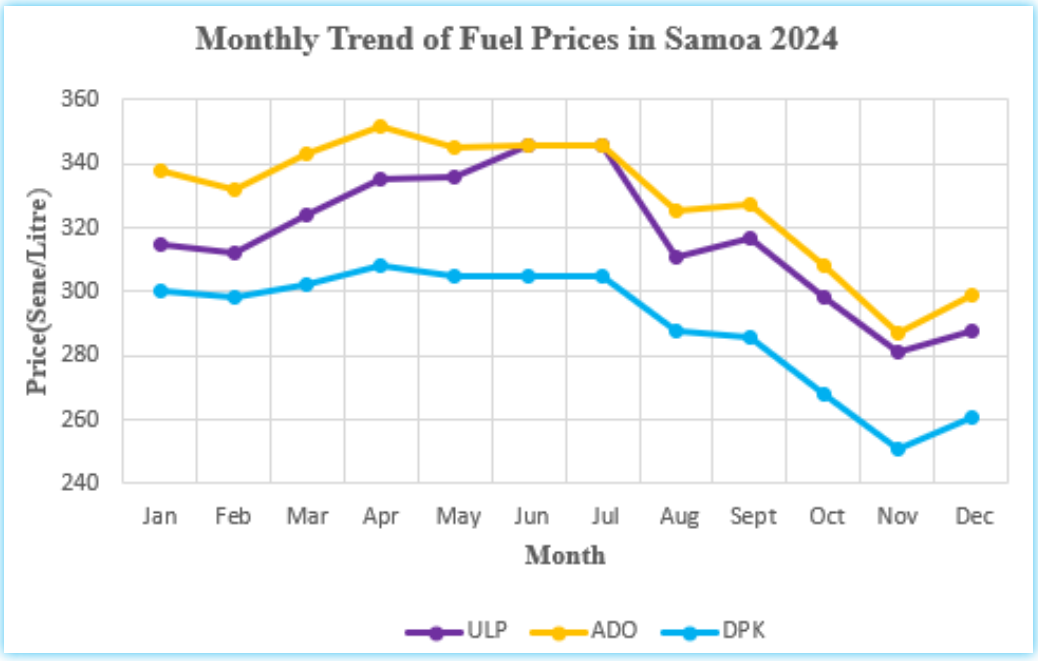


***Figure 16**: Trend of Samoa's monthly fuel prices in 2024*

For all fuels (ADO, ULP & DPK), prices gradually increased in the first half of the year (January-July), reaching their highest around April to July, mainly due to rising global oil prices and shipping costs. In the second half of the year (August-December), prices decline sharply, with the lowest recorded in November. Overall, by December, all fuel types were cheaper than at the beginning of the year, indicating the decreasing global crude oil prices and stabilized supply conditions.

Table 8: Breakdown of ULP Petrol Retail Price- June 2024

ULP Petrol Retail Price - Components June 2024	SAT / Liter	%
Land Product Cost	$ 2.07	60.0%
On Shore Distributor Costs	$ 0.05	1.3%
Savaii Surcharge	$ 0.02	0.5%
Retail Margin	$ 0.10	2.9%
Govt Duty	$ 0.55	15.9%
Govt Charge PL/TL/ACB	$ 0.22	6.3%
Govt VAGST Total	$ 0.45	13.0%
Retail Price	**$ 3.46**	**100%**

The key driver of global oil prices is at times perceived, forecast of the crude oil demand supply balance. In turn, this is impacted by global economic predictions and geopolitical influences. The impact of OPEC+ in setting supply levels from its member countries has been a key factor; restricting supply leads to higher prices, whereas increased supply tends to reduce prices. As noted in the table above, the imported cost of fuels (landed cost) is the key component of Samoa's fuel prices.

4.2 Imports

Samoa imports three main types of fuel — unleaded petrol, dual-purpose kerosene, and automotive diesel. These petroleum products are offloaded from international tankers at Matautu Wharf and transferred via pipeline to the Petroleum Products Supplies (PPS) storage tanks at the Sogi Terminal. From there, fuel is distributed to service stations, industries, and other end users nationwide. Liquefied Petroleum Gas (LPG) is also included, as it is a key petroleum product used primarily for heating and cooking.

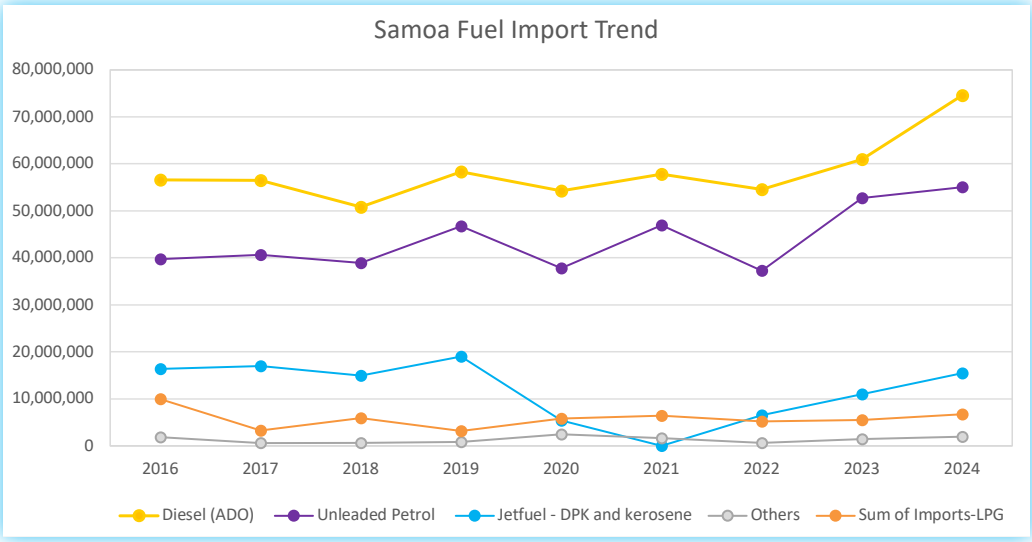


***Figure 17**: Samoa's Fuel Import Trend*

As shown in Figure 19, Samoa's imported fuel 2024 has the highest increase when compared to 2023 to 2016. The growth in petroleum products import is due to population growth, increasing number of vehicles, inter-islands vessel trips, electricity generation and re-export to Tokelau.

Volume growth in 2024 over 2023 reflects the ongoing recovery of the economy after the impact of the COVID-19 pandemic. Additionally, EPC increased diesel usage, and DPK/Jet increased due to the CHOGM Conference.

According to Figure 20, the Diesel (ADO) remained the most imported fuel in 2024, with an estimated 74 million litres (ML). The second most imported was Unleaded Petrol (DPK) at 55.04 ML, followed by Kerosene at 15.5 ML, LPG for heating and cooking at approximately 6.8 ML, and Other or Non-Energy Use Petroleum Products at around 1.97 ML.

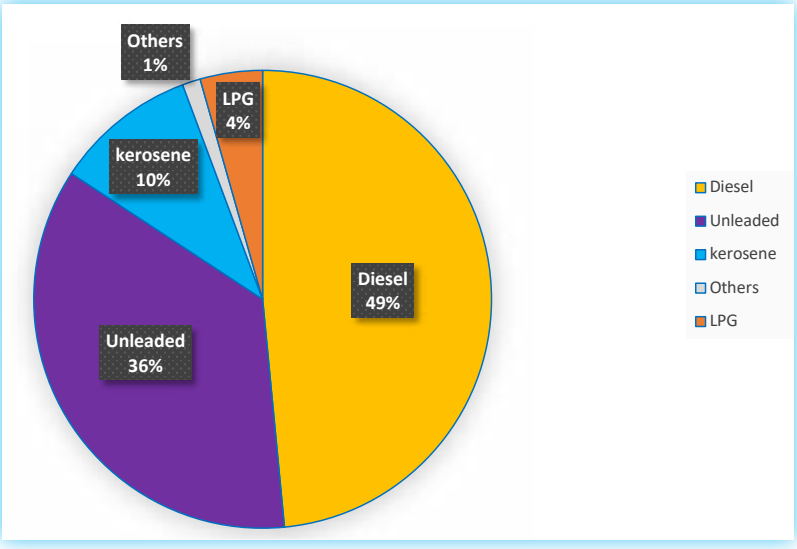


***Figure 18**: Breakdown of Fuel Imports*

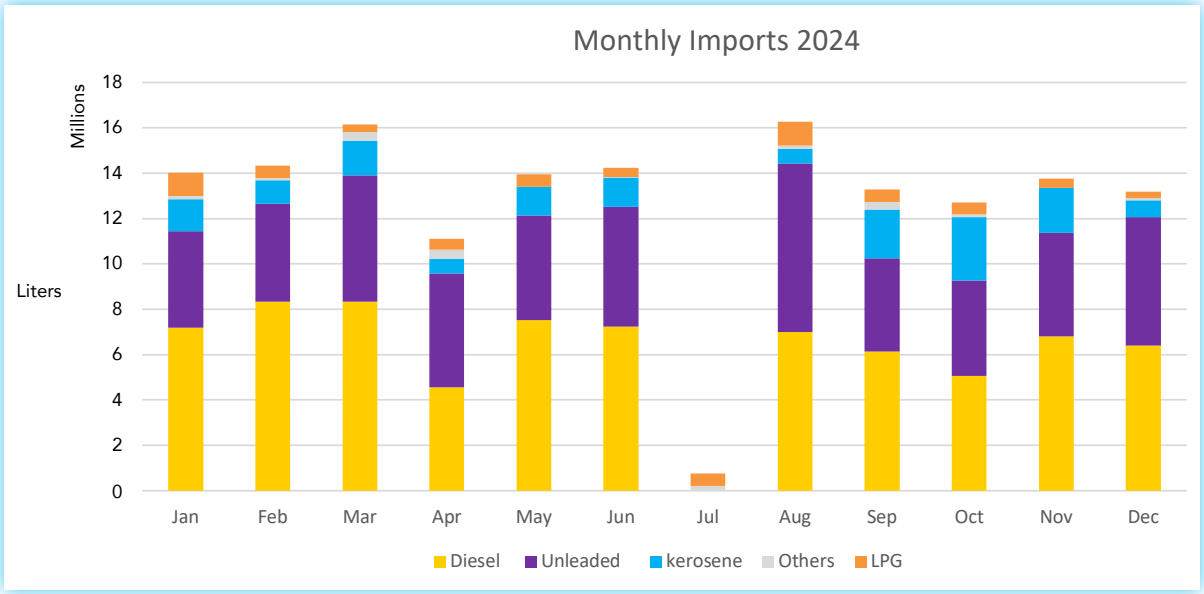


***Figure 19**: Monthly Trend of Samoa's Fuel Imports 2024*

As seen in the Figure 21 above, this indicates a breakdown on types of fuel imported monthly within the year 2024. Diesel remained the most imported fuel in Samoa, with consistently high volumes throughout the year, peaking in February at over 8.3 million litres. Unleaded fuel followed closely, showing strong imports in March and August, reflecting increased transport demand during those periods. Kerosene imports fluctuated significantly, reaching a high in October with over 2.8 million litres, possibly due to increased aviation or household use. LPG imports remained relatively stable across the year, while imports under "Others" were minimal and irregular. Overall, total fuel imports indicate steady demand with notable spikes in the first and third quarters of the year.

4.3 Re-exports, International Aviation & Bunkering

Samoa continues to play an important role as a regional fuel supplier by re-exporting Petroleum products to neighbouring Tokelau. In addition, fuels used for international aviation and Marine bunkering are assumed as re-exports, as they are consumed beyond Samoa's domestic market. This approach highlights Samoa's strategic position in regional fuel distribution and ensures accurate accounting of fuel trade and consumption in national energy data.

Table 9: Samoa's Re-export, International Aviation & Bunkering 2024

Fuel Type	Re-export Volume (kL)	International Aviation & Bunkering (kL)
ULP	229	-
ADO	742.57	1591.85
DPK	1	9699.68
LPG	30	-
Others (non-energy use)	3.1	-
Bitumen	-	-

ADO remains the largest re-export fuel, accounting for about 742 kL, reflecting strong demand from Tokelau. ULP follows with a re-export volume of 229 kL, while LPG is re-exported at a moderate level. In contrast, DPK and other non-energy use fuels show only minimal re-export activity. For international aviation and vessel bunkering, DPK records an exceptionally high usage volume, highlighting the significant demand for aviation fuel for international flights. Meanwhile, ADO used for bunkering totals at 1591 kL, indicating an active maritime sector with substantial diesel requirements.

4.4 Consumption by End Use Sector

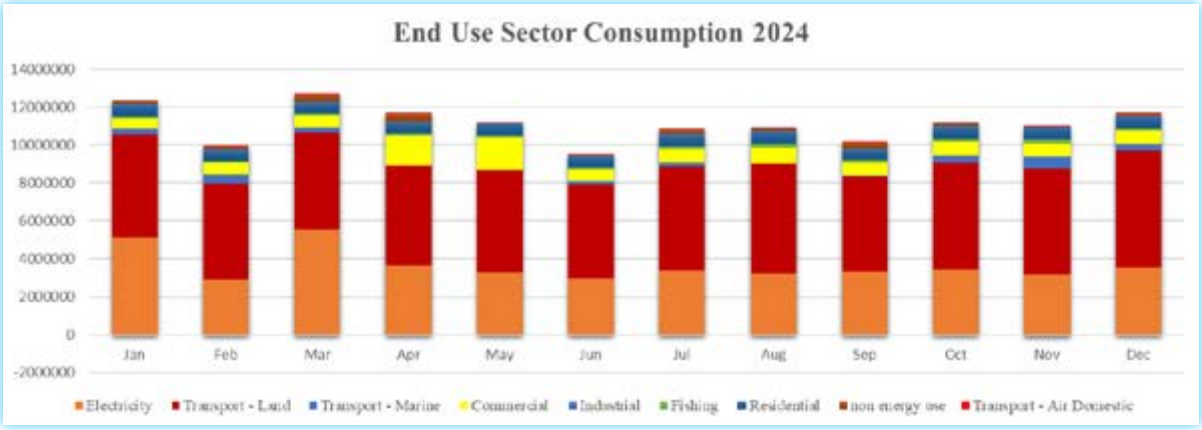


***Figure 20**: Monthly Consumption by Sector 2024*

As shown in Figure 20, Samoa's energy consumption was dominated by the transport and electricity sectors, which together accounted for over 80% of total national use. Land transport remained the single largest consumer, highlighting continued dependence on petroleum fuels for road vehicles. Electricity demand followed as the second largest, reflecting growing residential and commercial usage. Commercial energy consumption peaked around April–May, suggesting heightened business activity during the mid-year period. Overall, the data illustrate stable residential consumption, minimal industrial energy activity, and relatively low use in domestic aviation and fishing, underscoring transport's central role in Samoa's overall energy profile.

4.5 Opportunities and Developments within the Petroleum Sector

Infrastructure:

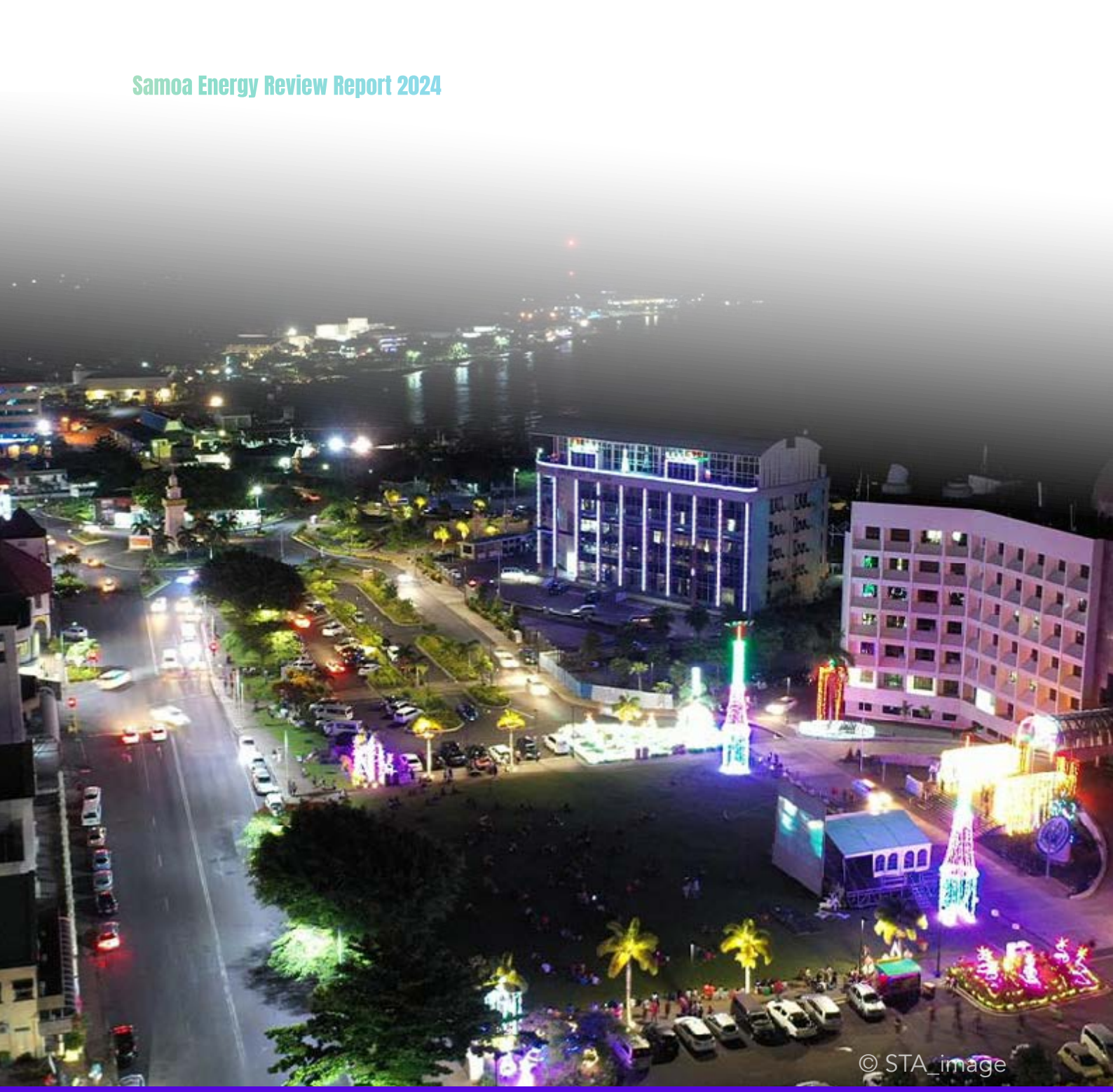
- Sogi Tank 7 construction completed

Enhanced Petroleum Governance:

Oversight by the Ministry of Finance's Petroleum Management Unit, the Petroleum Taskforce ensures improved monitoring of petroleum pricing, HSSE standards, and energy efficiency protocols across fuel operations

Petrol Station Compliance & Capacity:

Compliance with health, safety, security, and environment (HSSE) standards among petrol stations reaches up to 70% compliance overall.



CHAPTER FIVE

Chapter 5

END-USE SECTOR

Samoa's end-use sector refers to groups of consumers that directly use energy for their daily activities, services, and operations. It includes Transport, Commercial & Industries, Residential, Community &Social services Sector, as well as Fisheries.

5.1 Transport Sector

In 2024, the transport sector remained one of Samoa's largest end-use consumers of energy, driven predominantly by continued reliance on imported petroleum products for Land Transport, inter-island marine services (Marine Transport), and domestic aviation between Faleolo, Fagalii and Maota Airports. Fuel demand in this sector continued to shape national energy consumption patterns, with transport accounting for a significant share of overall fossil fuel use.

Transport Consumption

The data reflects only Samoa's domestic energy consumption for the transport sector

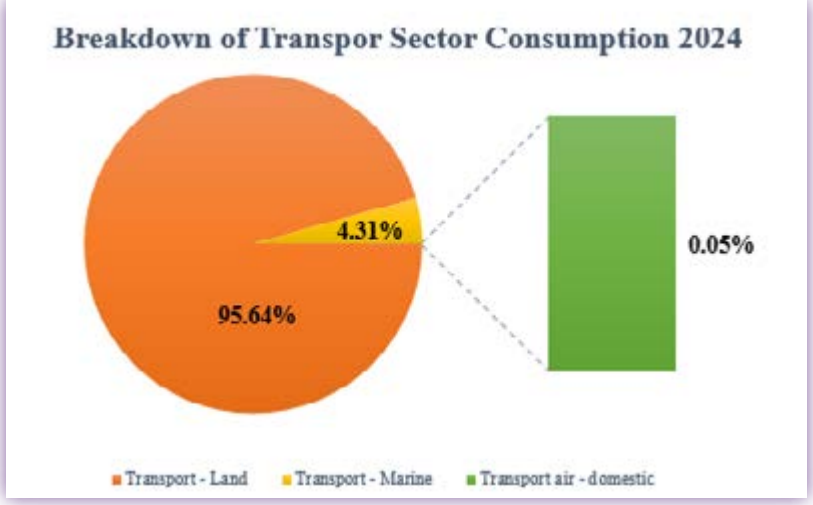


***Figure 21**: Fuel Consumption breakdown by Transport Sector*

The pie chart illustrates that land transport is the most dominant end-use of energy within Samoa's transport sector, accounting for the vast majority of consumption in 2024. This is followed by marine transport, which represents approximately 4.31% of total transport energy use. The smallest share is attributed to domestic air transport, contributing only 0.05% of the sector's energy consumption for the year

Land Transport Consumption:

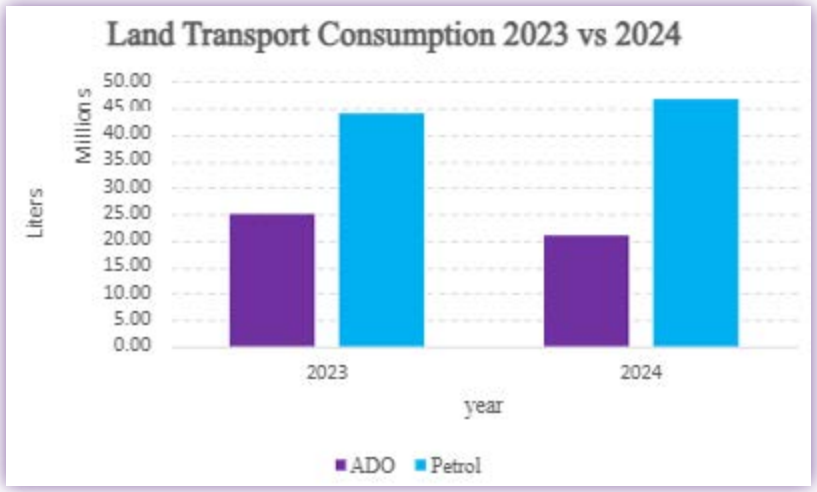


***Figure 22**: Land Transport Consumption trend by fuel 2023-2024*

Land transport fuel consumption recorded contrasting trends between 2023 and 2024. ADO consumption decreased by 17.3%, falling from 25.25 million litres in 2023 to 20.87 million litres in 2024, indicating reduced diesel usage. In contrast, petrol consumption increased by 6.9%, rising from 43.87 million litres to 46.88 million litres, reflecting continued growth in petrol-powered vehicle activity. Overall, petrol remains the dominant fuel in land transport, reinforcing the sector's continued reliance on fossil fuels.

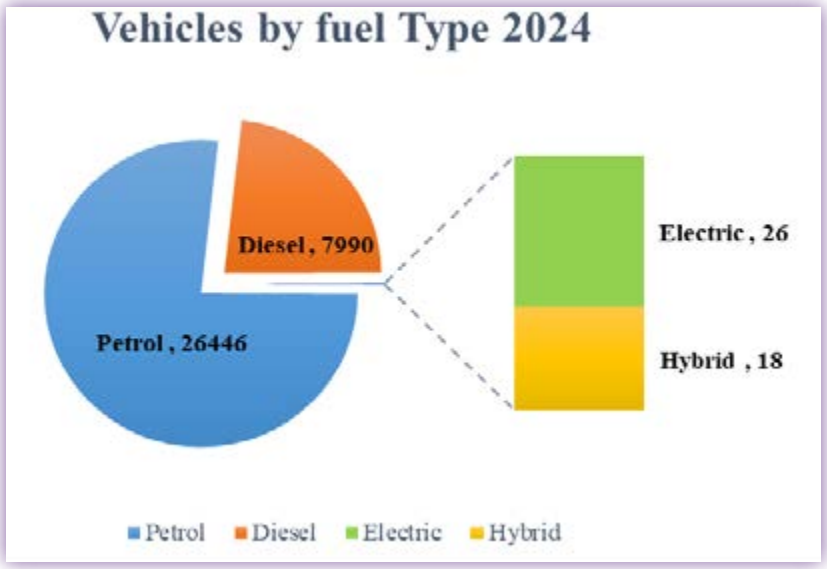


***Figure 23**: Total Registered Vehicles by Fuel Type 2024*

***Figure 24**: New Registered Vehicles by Type 2024*

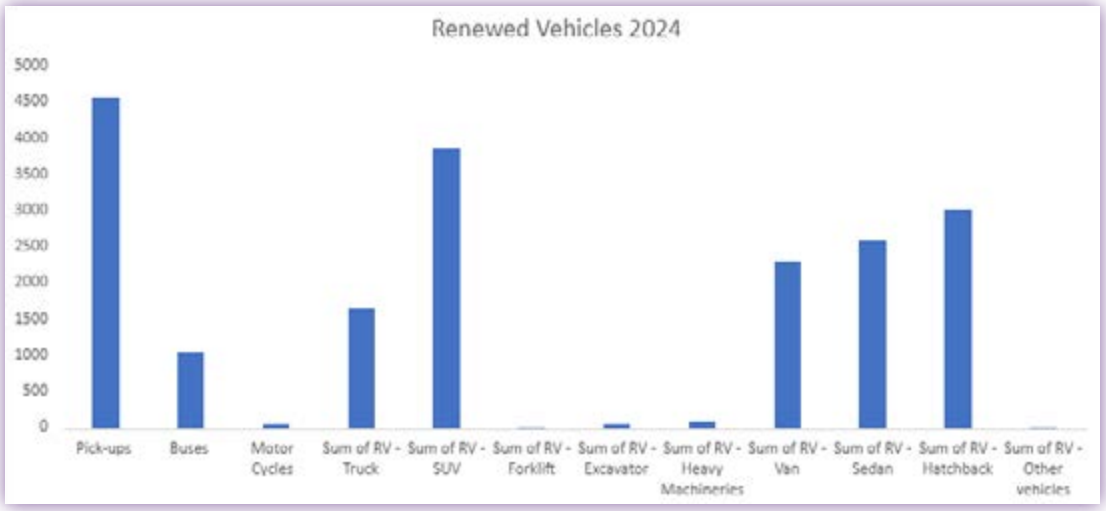


***Figure 25**: Renewed Registered Vehicles by Type 2024*

***Figure 26**: Total Registered vehicles by Type 2024*

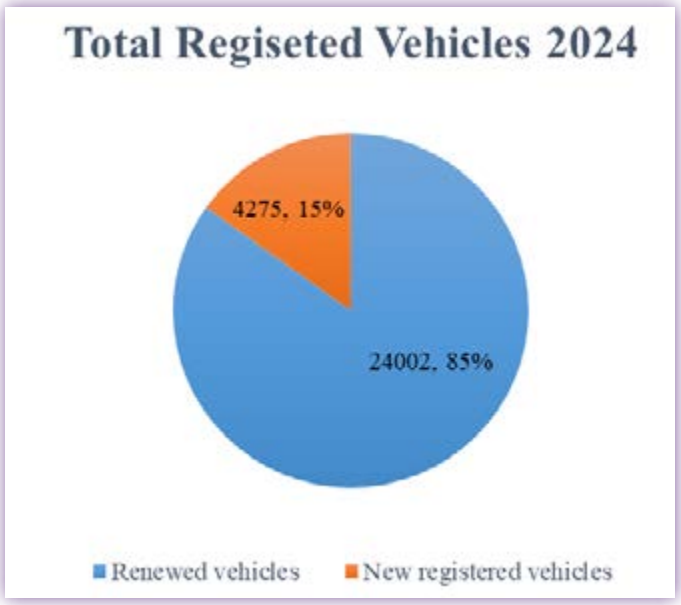


***Figure 27**: Breakdown of Registered Vehicles by New & Renewed 2024*

Marine Transport Consumption:

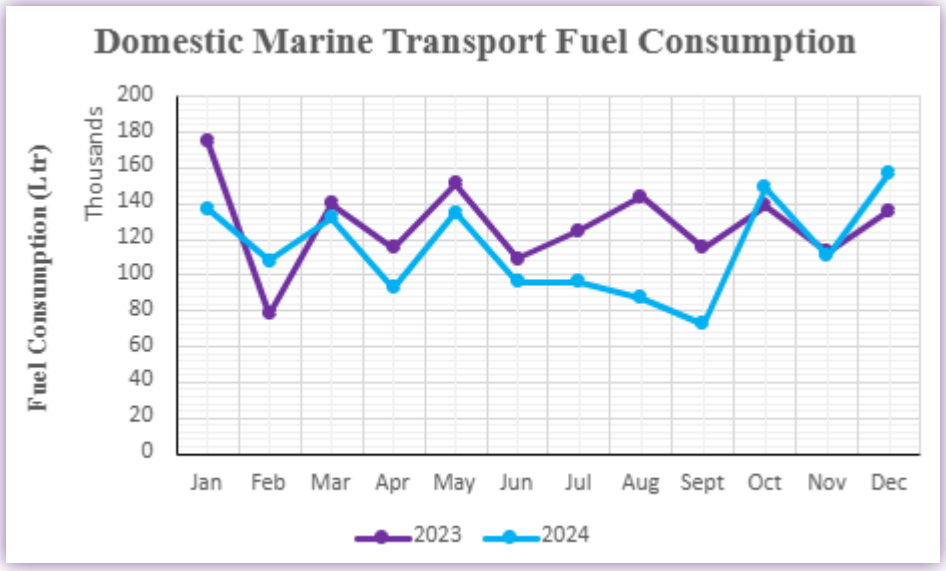


***Figure 28**: Fuel Consumption by Marine Transport*

As seen in the line chart above, domestic marine transport fuel consumption totalled 1.37 million litres in 2024, a 11% decline from 2023 (about 1.5 million L), reflecting the critical role of inter-island shipping and local maritime services in supporting Samoa's connectivity and trade. Monthly consumption fluctuated throughout the year, with higher usage recorded in December (157,000 litres) and October (about 149,000 litres), likely driven by increased passenger and cargo movements, while the lowest consumption occurred in September (about 72,000 litres). Overall, domestic marine fuel use demonstrates steady demand across the year, underscoring the sector's continued dependence on conventional fuels for essential transport services.

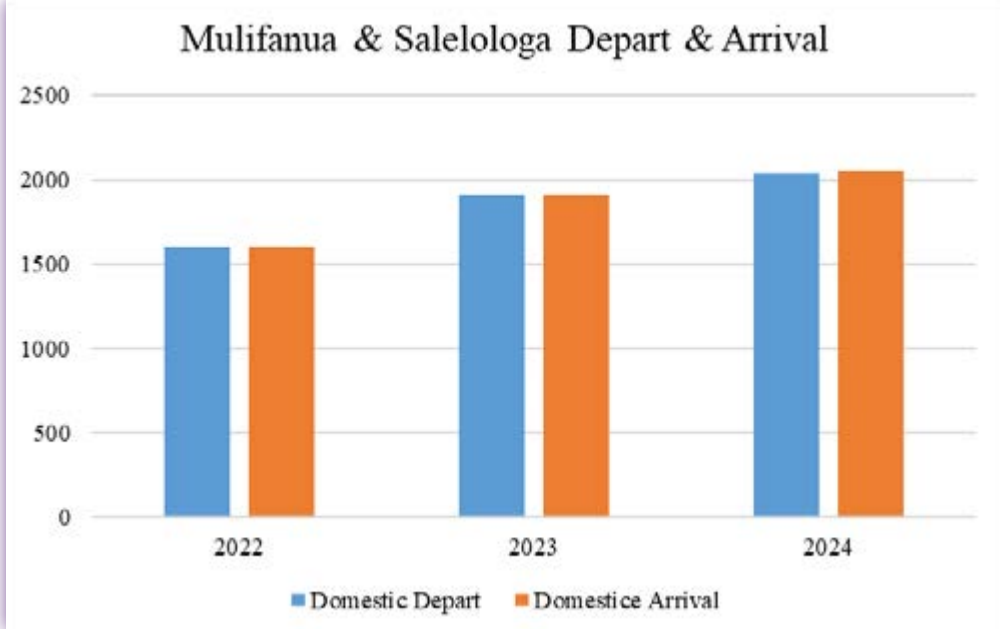


***Figure 29**: Number of Domestic Inter-Island Trips (2022-2024)*

5.2 Residential, Community, Social &Government Sector

The residential, community, social, and government sectors represent Samoa's main energy end-use consumers. The residential sector covers household energy consumption for lighting, cooking & heating, and other household activities that require energy. The community and Social Services sector reports streetlights, school buildings, churches, and NGOs' energy consumption. The Government consists of the Government-owned buildings and transportation energy use.

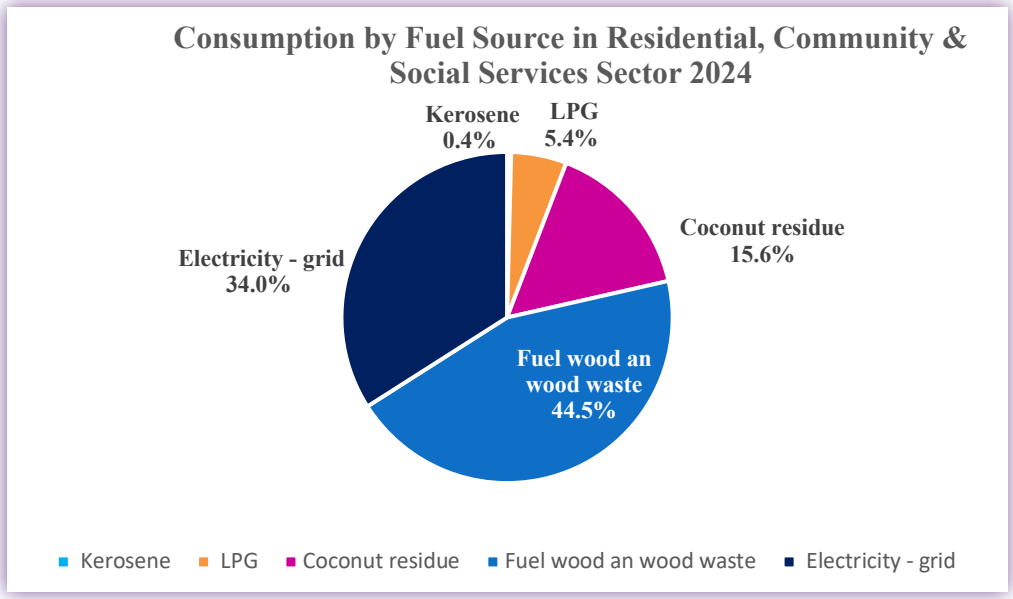


***Figure 30**: Breakdown of Energy Consumption in Residential, Community & Services sector by Fuel type 2024*

Total energy consumption in the Residential, Community & Social Services sector reached approximately 1,800 Terajoules in 2024, a 7% increase over 2023. Biomass remains the dominant energy source, indicating continued reliance on traditional wood-based and residue fuels. Electricity is playing a substantial and increasing role, accounting for about 34% of total consumption. LPG use continues to increase, contributing approximately 5.4% (97 TJ), while kerosene consumption is minimal. Suggesting it is nearing complete phase-out.

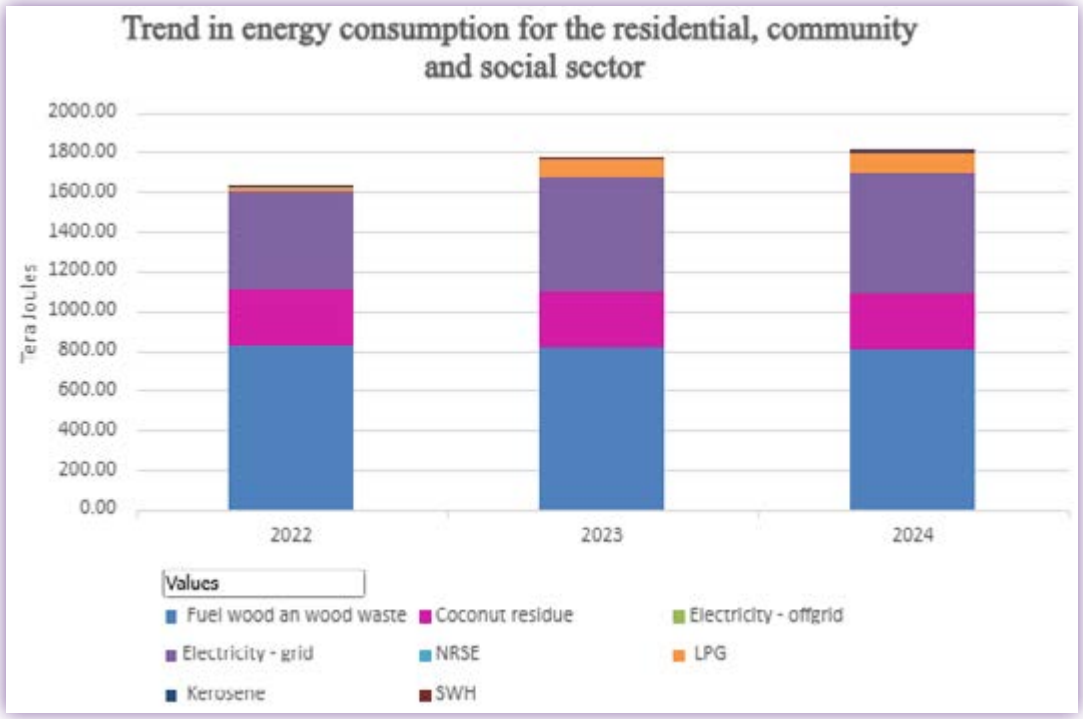


***Figure 31**: Energy Consumption Trend in Residential, Community & Social Services Sector*

Overall energy consumption increases steadily from 2022 (about 1,600 TJ) to 2024 (about 1,800 TJ). Traditional biomass (fuel wood, wood waste, and coconut residue) remains the dominant energy source but has declined over time. Grid electricity is the fastest-growing component and is the main driver of increased demand. LPG use is rising rapidly, while kerosene and other minor sources continue to decline.

Residential:

The residential sector is the second largest consumer of energy. Highly depend on biomass for cooking and heating.

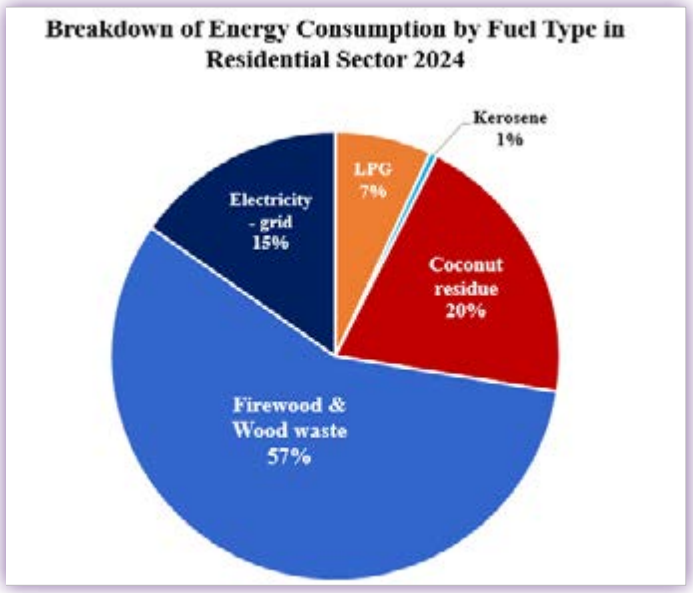


***Figure 32**: Energy Consumption breakdown by source in Residential Sector*

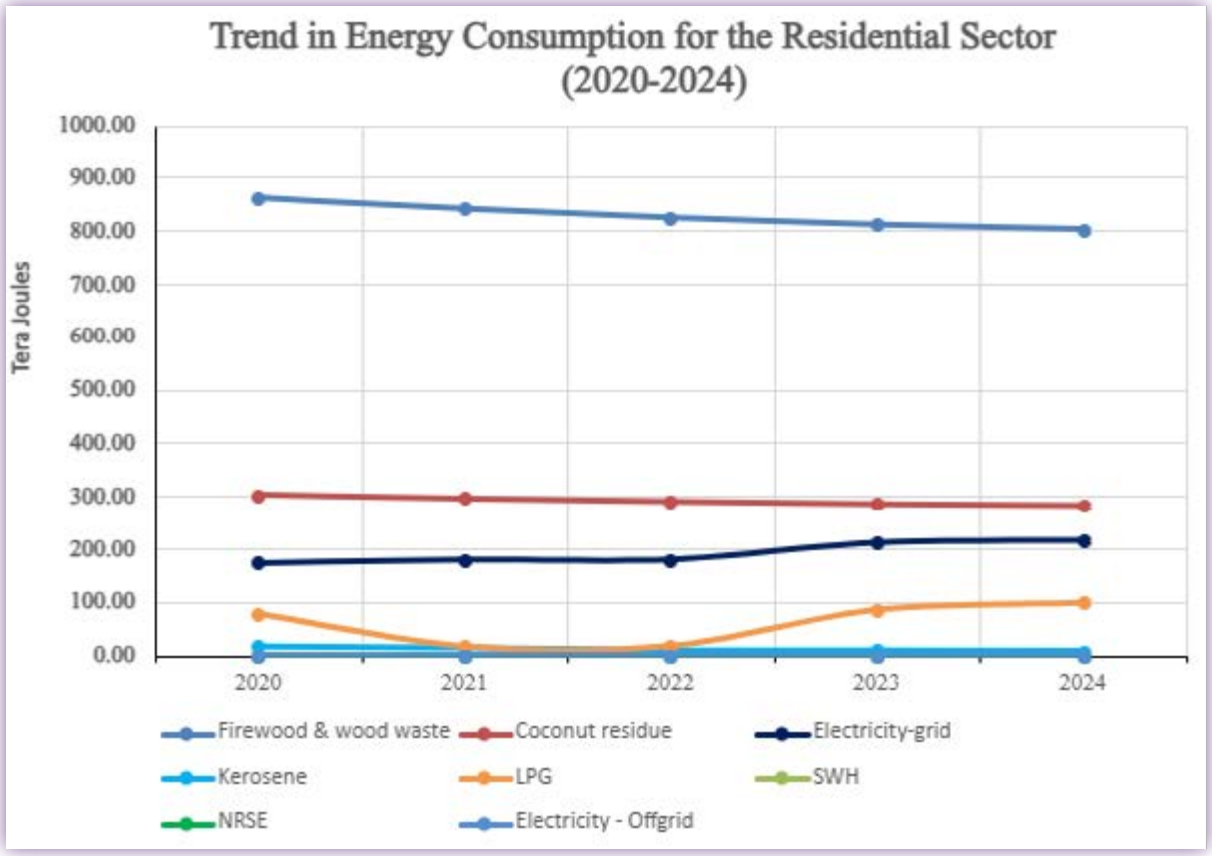


***Figure 33**: Energy Consumption Trend in Residential*

Energy Consumption Trends in the Residential Sector shows a gradual transition away from traditional biomass, with both firewood and coconut residue steadily declining, although they remain the dominant energy sources. Grid electricity use increases consistently, particularly after 2022, for LPG consumption, while volatile, it rises sharply in the last two years, suggesting growing adoption of cleaner cooking fuels. In contrast, kerosene use declines continuously, reflecting its progressive phase-out, while solar water heating, NRSE, and off-grid electricity remain negligible.

Community & Social Services:

The Community and Social Services sector focus on reporting energy usage in schools, church buildings, streetlights, and other community-related activities. The sector relies heavily on grid electricity, about 99.95%, and the 0.05% from NRSE, mainly small Renewable Energy projects in the community, such as solar lights, biogas & etc.

Government Sector:

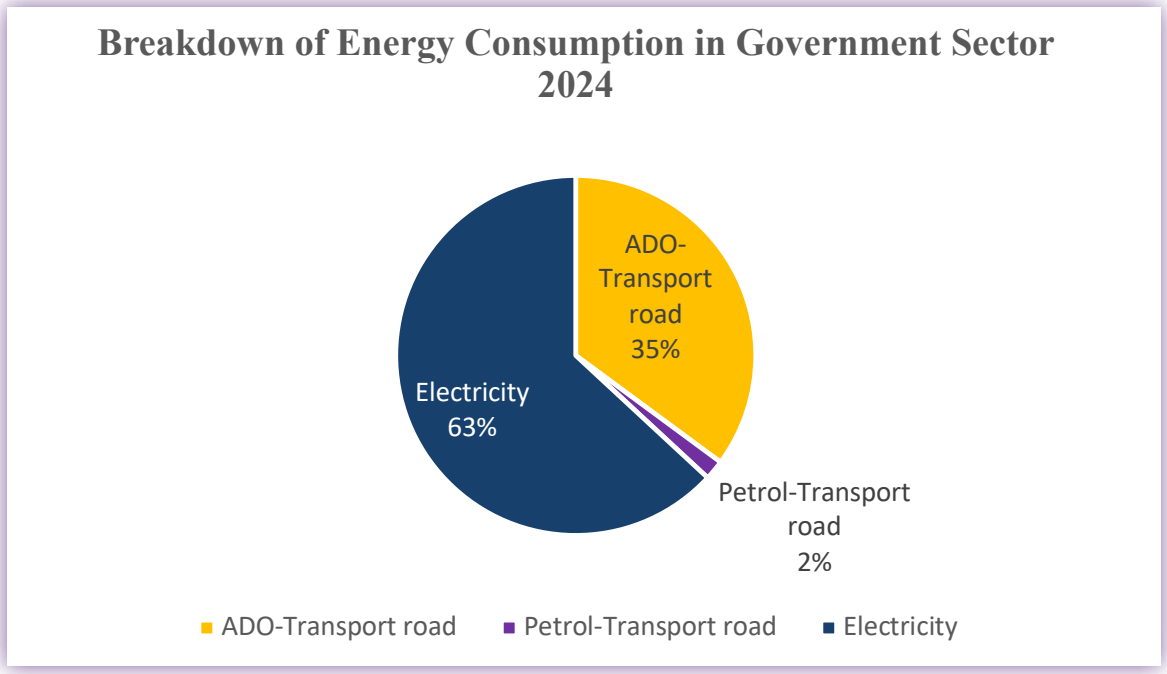


***Figure 34**: Energy Consumption Trend in Residential*

From the chart, Electricity accounts for the largest type of energy consumption at approximately 63% (238 TJ), confirming it as the primary energy source for government operations. ADO for road transport accounts for about 35% (130 TJ), highlighting its continued importance for government transport and logistics. Lastly, Petrol for road transport contributes only about 2% (about 7 TJ), indicating a minimal role in the sector's overall energy use.

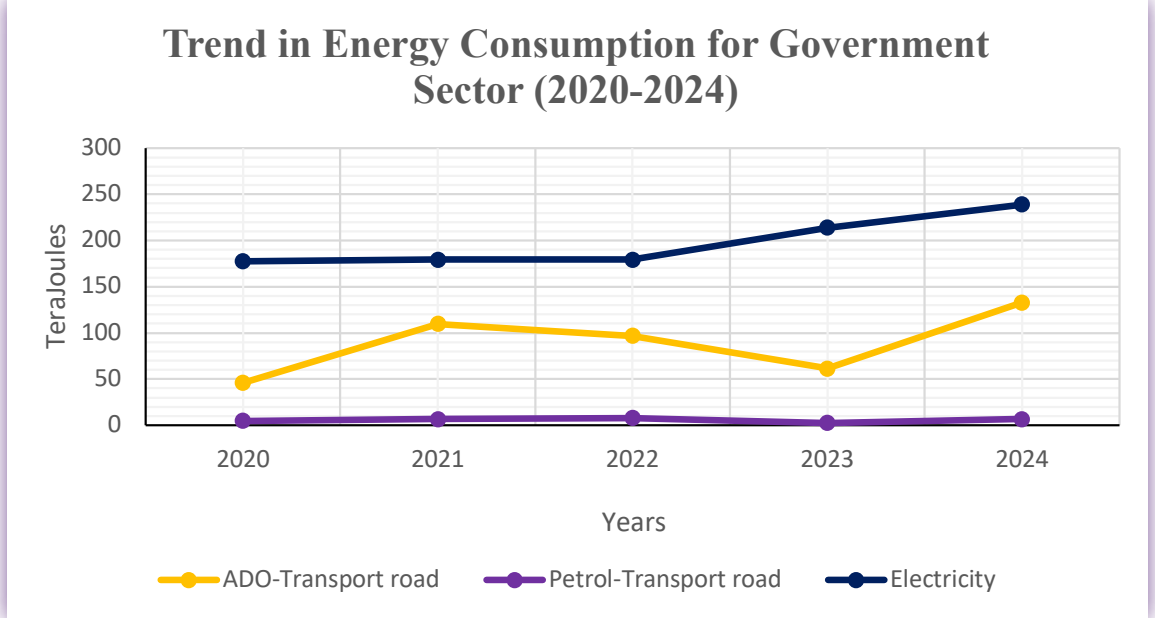


***Figure 35**: Energy Consumption Trend in Government Sector*

Government sector energy consumption from 2022 to 2024 shows an overall upward trend, driven mainly by steadily increasing electricity use. Diesel (ADO) consumption for transport is variable, with sharp fluctuations over the period and a peak in 2024. Petrol use remains very low throughout, confirming its minor role in the government's energy consumption.

5.3 Fisheries

The fishing sector in Samoa plays a vital role in food security, livelihoods, and the national economy, relying on energy consumption for operations such as boat fuel, processing, and cold-storage—making energy efficiency and sustainable energy policy important for long-term growth.

Table 10: Vessel Registration by class

Class	Description	Total Registered Vessels - 2024
Class A	≤ 11m (small-scale artisanal boats)	66
Class B	11m–12.5m	0
Class C	12.5m–15m	0
Class D	15m–20.5m	1
Class E	≥ 20.5m	1
Class F	Locally based foreign fishing vessels	0
Total		68

Description of Boat Engines and Fuel Capacity:

Of the total 68 registered vessels are categorized by their engine capacity in size/units as detailed below:

Table 11: Total number of Registered Vessels by class and Engine Capacity

# of Registed Vessels	Total Engine Capacity	UNITS
Class A-66	2640	HP
Class D-1	360	KW
Class E-1	360	KW

All vessels with engine power measured in PS/kW units are converted to Horsepower Units as shown in Table 10. The table also includes vessels with engine power that were already documented in Horsepower (HP) unit:

Table 12: Total Engine Capacity of Registered Vessels by class

Class	Description	Total Engine Capacity (HP) of Registered Fishing Vessels per Class - 2024
Class A	≤ 11m (small-scale artisanal boats)	2640
Class B	11m–12.5m	0
Class C	12.5m 15m	0
Class D	15m–20.5m	483
Class E	≥ 20.5m	483
Class F	Locally based foreign fishing vessels	0
Total		3606

5.4 Fuel type by vessel category

Table 13: Vessel Category Description & Fuel type

Class	Description	Fuel Type
Class A	≤ 11m (small-scale artisanal boats)	Unleaded (outboard motors) infused with 2 stroke motor oil
Class B	11m–12.5m	Diesel (in-board motors)
Class C	12.5m–15m	Diesel (in-board motors)
Class D	15m–20.5m	Diesel (in-board motors)
Class E	> 20.5m	Diesel (in-board motors)
Class F	Locally based foreign fishing vessels	Diesel (in-board motors)

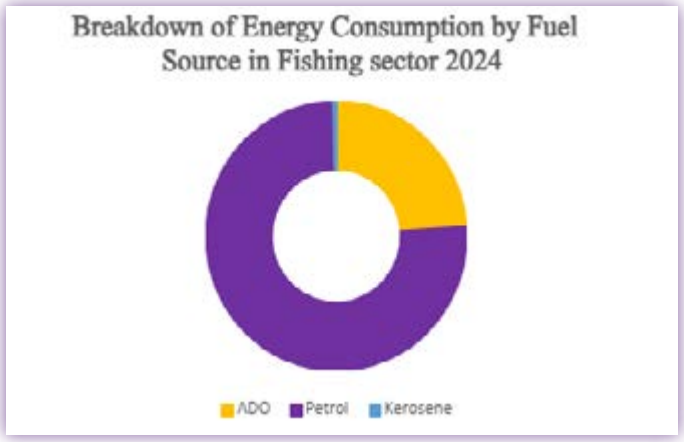


***Figure 36**: Breakdown of Energy Consumption by Fuel Sources in Fishing Sector 2024*

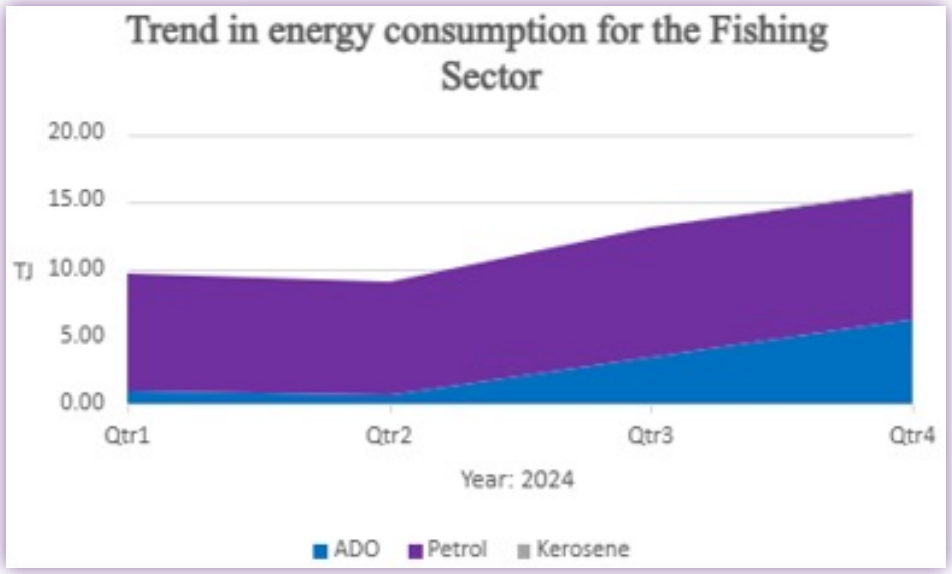


***Figure 37**: Energy Consumption in Fishing Sector 2024*

ULP remains the most consumed fuel type in the fishing sector accounted for about 36 TJ, ADO at around 11 TJ and kerosene as the least throughout the year. From the chart, the fuel consumption rapid increase between Quarter 2 and Quarter 4 indicates the huge consumption of fishing boats for seasonal fishing.

5.5 Commercial & Industry Sector:

In Samoa, the Commercial and Industrial Sector comprises energy use by businesses, institutions, and industries, including commercial services such as hotels, shops, banks, and other service providers, as well as industrial activities including manufacturing, construction, and quarrying.

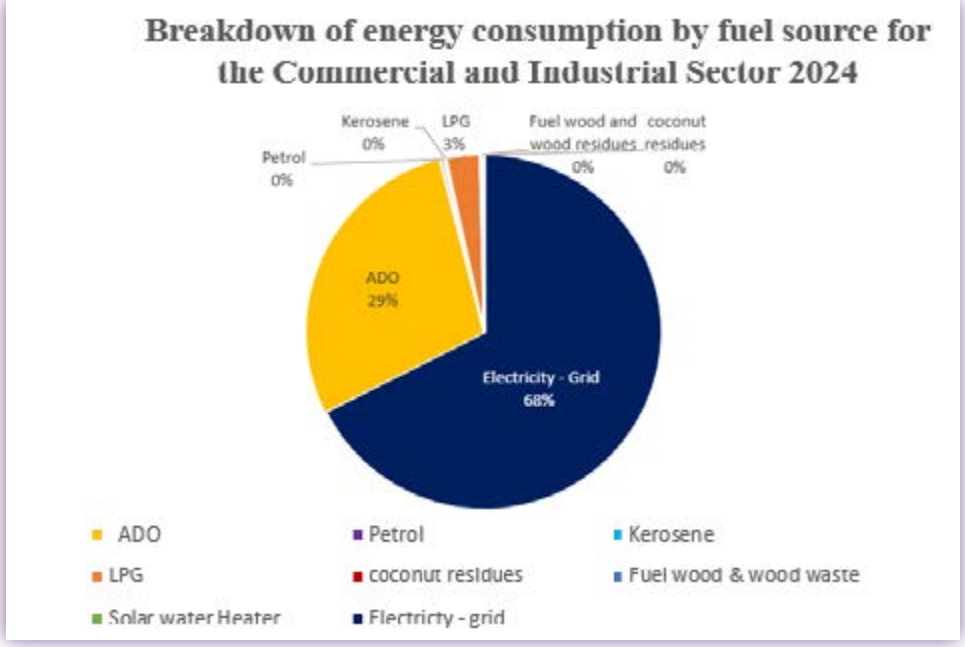


***Figure 38**: Energy Consumption breakdown by fuel type in Commercial & Industrial sector*

The energy consumption in the Commercial & Industrial sector is dominated by Grid electricity, which accounts for about two-thirds of total use, i.e., about 700 TJ, reflecting the sector's strong reliance on electrically powered operations and services. ADO is the second-largest source, contributing nearly one-third of consumption (3. All other fuels, such as LPG, ULP, kerosene, biomass, and solar water heaters, collectively total less than 1%.

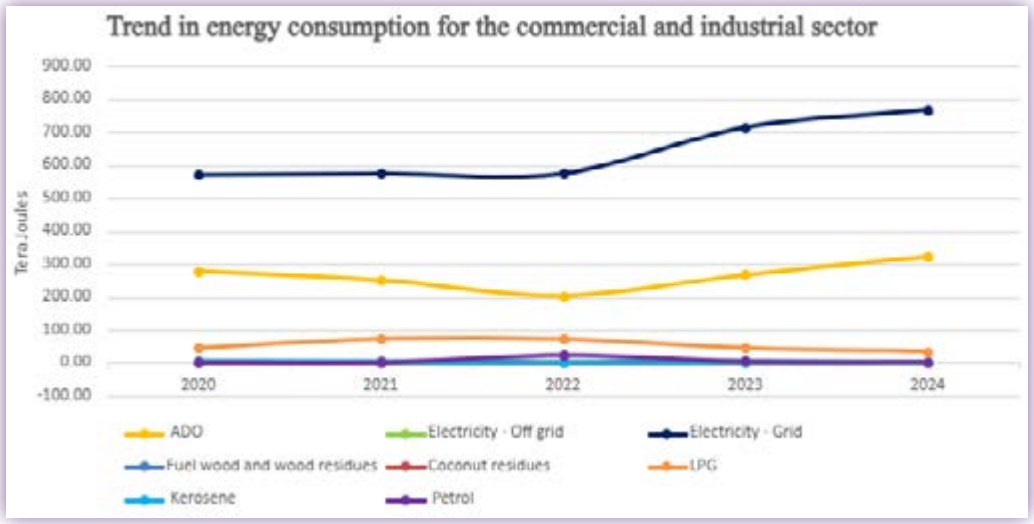


***Figure 39**: Energy Consumption by fuel type in Commercial & Industry sector*

From 2020 to 2024, energy consumption in Samoa's Commercial and Industrial sector shows a clear shift toward increased Grid electricity use, reflecting growing economic activity and greater electrification. Diesel (ADO) use declined up to 2022 but rose sharply in 2023-2024, indicating a recovery in industrial and construction activities and continued reliance on diesel for equipment and backup power. LPF consumption peaked in 2021-2022 before declining, suggesting fuel substitution toward electricity or efficiency improvements, while petrol use shows a temporary spike in 2022 rather than a sustained increase. Kerosene and Biomass fuels remained minimal and continued to decline, confirming their diminishing role in the sector's overall energy mix.

5.6 Challenges

The compilation of the 2024 Energy Review Report faced several persistent challenges, particularly regarding data collection and quality assurance. Although data was collected every quarter, subsequent validation revealed inaccuracies and gaps in both newly submitted and existing datasets. These discrepancies continue to hinder the integrity and reliability of national energy reporting.

A key issue was the lack of timely and complete data submissions, particularly from some private sector providers, with certain entities failing to supply the required information altogether. This ongoing challenge underscores the need for stronger collaboration with data providers, supported by the National Energy Coordination Committee (NECC), to ensure compliance and reinforce the importance of data contributions to national planning.

Additionally, the current methodology for estimating biomass consumption relies on a household energy survey conducted in the 1990s, which is likely outdated and no longer reflective of current usage patterns. There is an urgent need to conduct a new, nationally representative biomass survey to ensure more accurate assessments of Samoa's energy profile.

Moreover, carbon emission calculation is one of the challenges of energy review reports. Data gaps delay the inclusion of carbon emissions in the review, and the inaccuracy of end-use data further complicates it.

ANNEXURE

Annex 1: ENERGY CONVERSION UNITS & COMMODITIES

Energy Conversion Factors

1. Liquid fuels

	Mega joules per litre	Mega joules per gallon	Litres per tonne	Gigajoules per tonne
LPG (Propane)	25.3	95.8	1960	49.6
LPG(Butane)	27.7	104.9	1730	49.0
Aviation gasoline (avgas)	33.2	125.7	1410	46.8
Motor/automotive gasoline(mogas)	34.6	131.0	1340	46.4
Dual-purpose kerosene (DPK)	36.8	139.3	1260	46.4
Automotive Diesel Oil (ADO)	38.6	146.1	1182	45.6
Industrial diesel Oil (IDO)	39.0	147.6	1150	44.9
Fuel oil- high sulphur (FO)	40.8	154.4	1050	42.9
Lubricants and Greases	38.8	146.9	1120	43.4
Bitumen	44.0	166.6	980	42.7
Crude Oil	35.9	135.9	1249	44.9
Coconut oil	34.9	132.1	1100	38.4

2. *Solid Fuels*

	Gigajoules per tonne	Gigajoules per tonne
Charcoal	30.0	27.2
Fuelwood/woodwaste (40% mcwb)[1]	10.8	9.8
Fuelwood/woodwaste (13% mcwb)[2]	17.1	15.5
Coconut-palm wood	11.5	10.4
Coconut residues:[3]		
Shell (15% mcwb	14.6	13.2
Husk (30% mcwb	12.0	10.9
Average (air dry)[4]	14.0	12.7

3. *Gaseous fuels*

	Megajoules per Cubic Metre	Megajoules per Cubic Foot
Natural Gas	39.0	1.1
Methane	37.7	1.1

4. *Electricity*

	Megajoules per kWh
Electricity	3.6

Annex 2: ELECTRICITY TARIFF RATES

Electricity Rates

Non-Domestic Consumers on Prepaid Meters will be charged with the following tariff:

kWh/units	Total Cost per Unit
All Units	$1.02

Non-Domestic Consumers on Post-paid Meters will be charged with the following tariff:

kWh/units	Total Cost per Unit
All Units	$1.05

Tariff for 100 Largest Consumers

Fixed Rate Category	Daily Fixed Charge	Energy Charge	Debt Charge	Usage Charge
FR1	1520	0.67	0.02	0.08
FR2	1140	0.67	0.02	0.08
FR3	840	0.67	0.02	0.08
FR4	380	0.67	0.04	0.16
FR5	240	0.67	0.04	0.16
FR6	130	0.67	0.04	0.16

Domestic Consumers on Prepaid Meters will be charged with the following tariff:

kWh/units	Total Cost per Unit
1 - 50	$0.52
51 and over	$0.63

Domestic Consumers on Post-paid Meters will be charged with the following tariff:

kWh/units	Total Cost per Unit
All Units	$0.67

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