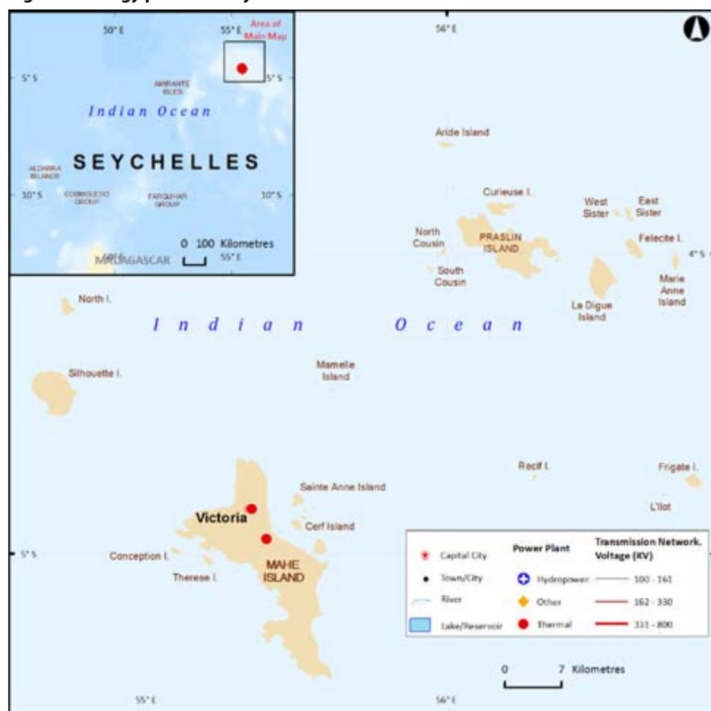




Figure 1: Energy profile of Seychelles



Energy Consumption and Production

In 2013 the population of the Seychelles was 0.08 million people as shown in Table 1. In 2015, total electricity production was 38 ktoe, with 94.7 per cent from fossil fuel sources (Table 2). Final electricity consumed in the same year was 35 ktoe (AFREC, 2015). Figures 2 and 3 show the key energy statistics.

Table 1: Seychelles' key indicators

Key indicators	Amount
Population (million)	0.08
GDP (billion 2005 USD)	1.38*
CO ₂ emission (Mt of CO ₂)	0.59

Source: (World Bank, 2015) *(IndexMundi, 2015)

Energy Resources

Biomass

Although there is a dearth of data, there is some evidence of the potential for biomass energy development, especially in the waste-to-energy sector. For example, the landfill at Providence on Mahe receives 35,000 tonnes of waste a year, which has the equivalent of roughly 8,000 tonnes of oil and could thus be a source of energy (Vreden, Wigan, Kruse, Dyhr-Mikkelsen, & Lindboe, 2010). Crop waste and residue from agricultural processes could also be used for energy generation. Although there has been some interest from various IPPs, comprehensive appraisals still need to be undertaken to establish commercial viability (REEEP, 2012).

Hydropower

There is no capacity for hydropower generation (REEEP, 2012).

Oil and natural gas

Final consumption of oil was 32 ktoe in 2015 and 36 ktoe of oil was used to generate electricity (AFREC, 2015). The Seychellois economy depends to a great deal on oil imports to meet national needs. A total of 323 ktoe of oil products were imported in 2015.

Wind

Measurements of wind are between 6.9 and 7.5 m/s at 80 m – suitable for commercial electricity generation. A largescale wind project — the 6 MW Port Victoria wind Power Project — has been built by MASDAR Clean Energy. It provides 7GWh of electricity per year (REEEP, 2012).

Figure 2: Total energy production, (ktoe)

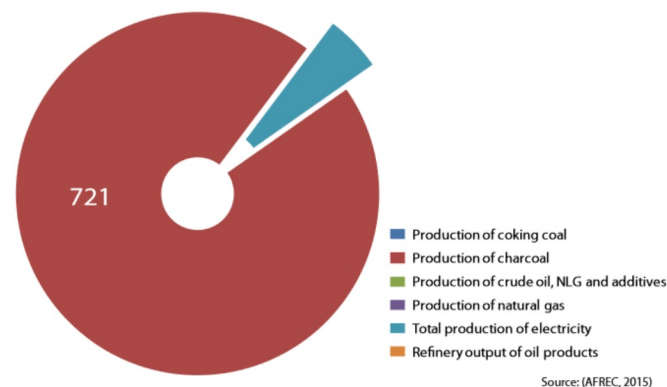


Figure 3: Total energy consumption, (ktoe)

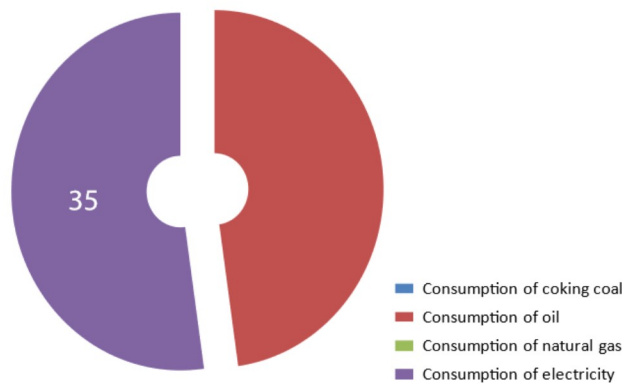


Table 2: Total energy statistics (ktoe)

Category	2000	2005	2010	2015 P
Production of coking coal	-	-	-	-
Production of charcoal	0	0	721	721
Production of crude oil, NLG and additives	-	-	-	-
Production of natural gas	-	-	-	-
Production of electricity from biofuels and waste	0	0	0	1
Production of electricity from fossil fuels	15	19	24	36
Production of nuclear electricity	-	-	-	-
Production of hydro electricity	-	-	-	-
Production of geothermal electricity	-	-	-	-
Production of electricity from solar, wind, Etc.	0	0	0	1
Total production of electricity	15	19	24	38
Refinery output of oil products	-	-	-	-
Final Consumption of coking coal	-	-	-	-
Final consumption of oil	192	287	317	32
Final consumption of natural gas	-	-	-	-
Final consumption of electricity	14	17	23	35
Consumption of oil in industry	0	0	0	1
Consumption of natural gas in industry	-	-	-	-
Consumption of electricity in industry	0	0	0	9
Consumption of coking coal in industry	-	-	-	-
Consumption of oil in transport	0	0	0	29
Consumption of electricity in transport	-	-	-	-
Net imports of coking coal	-	-	-	-
Net imports of crude oil, NGL, Etc.	-	-	-	-
Net imports of oil product	192	287	317	323
Net imports of natural gas	-	-	-	-
Net imports of electricity	-	-	-	-

- : Data not applicable

0 : Data not available

(P): Projected

(AFREC, 2015)

Geothermal

This still needs to be studied further (REEEP, 2012).

Solar

The mean irradiance has been measured at 5.8 kWh/m²/day and presents ideal opportunity for generating solar electricity (REEEP, 2012). The Seychelles Energy Commission has established standards and regulations to guide all stakeholders in the sector so as to ensure standardization in the importation and installation of PV systems that complement the electricity network (SEC, 2014).

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Tracking progress towards sustainable energy for all (SE4All)

The data indicates that access to electricity in the Seychelles is 100 per cent, but there is a significant disparity between rural and urban areas, with the former having an electrification rate of 17.3 per cent and urban areas with 100 per cent. Access to modern fuels is high with 99.78 per cent of the population using non-solid fuels in 2012 (World Bank, 2016).

The economy energy intensity (the ratio of the quantity of energy consumption per unit of economic output) was 4.5 MJ per US dollar (2005 dollars at PPP) in 2012, up from 1.8 MJ per US dollar in 1990. The compound annual growth rate (CAGR) between 2010 and 2012 was -10.84 (World Bank, 2015).

Seychelles is almost completely dependent on oil for energy including the production of electricity; thus, the share of renewable energy in the total final energy consumption is almost nothing (SEC, 2014). For example, in 2012, the share of renewable energy in the total final energy consumption was 0.5 per cent. Traditional solid biofuels formed 0.5 per cent of TFE in 2012 (World Bank, 2015).

Intended Nationally Determined Contributions (INDC) within the framework of the Paris climate Agreement

Like all small island states, the Seychelles is particularly vulnerable to the impacts of climate change and climate variability. It is prioritizing adaptation to climate change. The government has submitted its energy-related Intended Nationally Determined Contributions (INDCs). Those relevant to energy are listed in Table 4.

Table 3: Seychelles' progress towards achieving SDG7 – Ensure access to affordable, reliable, sustainable and modern energy for all

Target	Indicators	Year					
		1990	2000	2010	2012	2000-2010	2011-2015
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Per cent of population with access to electricity	97	99	100	100		
	7.1.2 Per cent of population with primary reliance on non-solid fuels	78	91	99	99.78		
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption			8.7 (2007)	0.5		
7.3 By 2030, Double the rate of improvement of energy efficiency	7.3.1 GDP per unit of energy use (constant 2011 PPP \$ per kg of oil equivalent)						
	Level of primary energy intensity(MJ/\$2005 PPP)	1.8		5.7	4.5	4.82	4.53

Sources: (World Bank, 2015); (World Bank, 2016)

Figure 4: SDG indicators




Percentage of population with access to electricity	Access to non-solid fuel (% of population)	GDP per unit of energy use (PPP \$ per kg of oil equivalent) 2013	Renewable energy consumption (% of total final energy consumption), 2006-2011, 2012
100% 	99.78% 	8.19 	0.51%

Table 4: Seychelles' key aspects/key mitigation measures to meet its energy Intended Nationally Determined Contributions (INDCs)

INDC
*Build Isolated Mini Power plant (1 MW);
*Build Hydro Power plant connected to the main network (9 MW);
*Install Photovoltaic solar panels (12 MW);
*Build Mini-hydro Power plant connected to the main grid (4 MW).

Source: (MEM, 2015)

Table 5: Seychelles institutional and legal framework

Basic Elements	Response
Presence of an Enabling Institutional Framework for sustainable energy development and services (Max 5 institutions) most critical ones	Ministry of Home Affairs, Environment, Transport and Energy
Presence of a Functional Energy Regulator	Seychelles Energy Commission
Ownership of sectoral resources and markets (Electricity/ power market; liquid fuels and gas market)	
Level of participation in regional energy infrastructure (Power Pools) and institutional arrangements	
Environment for Private Sector Participation	
Whether the Power Utility(ies) is/are vertically integrated or there is unbundling (list the Companies)	Public Utility Company (PUC)
Where oil and gas production exists, whether upstream services and operations are privatized or state-owned, or a mixture (extent) e.g., licensed private exploration and development companies)	
Extent to which Downstream services and operations are privatized or state-owned, or a mixture (extent)	Seychelles Petroleum Company
Presence of Functional (Feed in Tariffs) FIT systems	
Presence Functional IPPs and their contribution	
Legal, Policy and Strategy Frameworks	
Current enabling policies (including: RE; EE; private sector participation; & PPPs facilitation) (list 5 max) most critical ones	Energy Policy 2010-2030
Current enabling laws/pieces of legislation (including: RE; EE; private sector participation; & PPPs facilitation) – including electricity/grid codes & oil codes (5 max or yes/no) most critical ones	<ul style="list-style-type: none"> • Public Utility Company Act 1985 • Seychelles Energy Commission Act No. 5 of 2010 • The Public Utilities Corporation Act (1985) • Seychelles Energy Commission Act (2010) • Energy Regulatory Act 2012

This table was compiled with material from (REEEP, 2012) and (Vredes, Wigan, Kruze, Dyhr-Mikkelsen, & Lindboe, 2010)

Institutional and Legal Framework

The Ministry of Home Affairs, Environment, Transport and Energy is in charge of the energy sector (Table 5). The energy regulator is the Seychelles Energy Commission. The Public Utilities Company (PUC) is the sole generator, transmitter

and distributor of electric energy. On a regional level, the Seychelles is a member of the Southern Africa Development Corporation (SADC), but it is not a member of the Southern Africa Power Pool. The legal framework is provided by the Public Utilities Corporation Act (1985). The main sector

policy is the Seychelles Energy Policy 2010-2030. It calls for a review of the legal framework governing the energy sector and has special emphasis on renewable energy, energy efficiency and energy conservation.

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Windmills rise above the New Port on Victoria's Inner Harbour on Mahe Island, Seychelles