ENERGY PROFILE

Barbados

COUNTRY INDICATORS AND SDGS

GDP per capita / 8.1.1 Real GDP growth rate

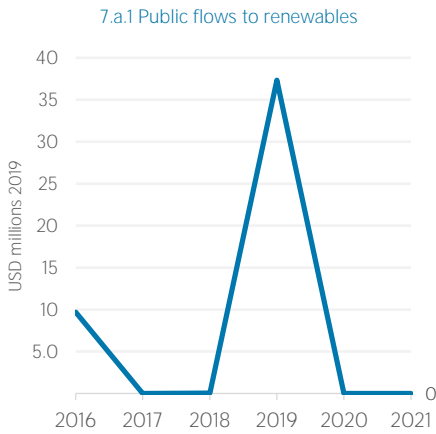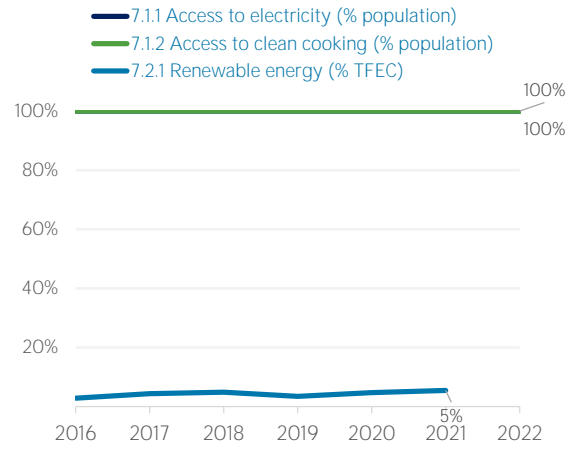### 7.3.1 Energy intensity

- 7.1.1 Access to electricity (% population)
- 7.1.2 Access to clean cooking (% population)
- 7.2.1 Renewable energy (% TFEC)

7.a.1 Public flows to renewables

7.b.1 Per capita renewable capacity

11.6.2 Air particulate matter (PM$_{2.5}$)
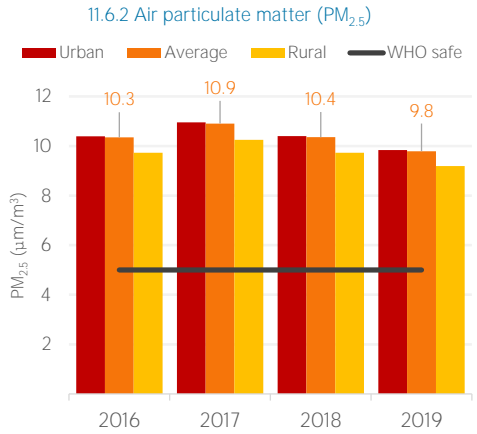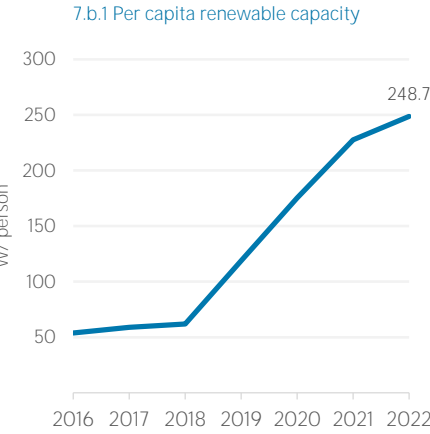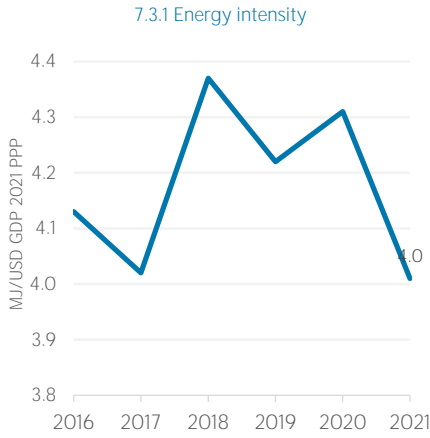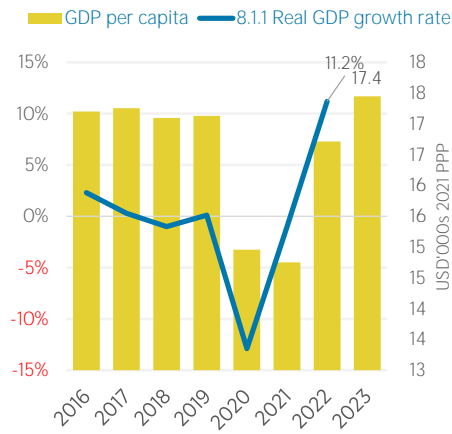
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	16 876	14 764
Renewable (TJ)	482	829
Total (TJ)	17 358	15 593
Renewable share (%)	3	5

Growth in TES	2016-21	2020-21
Non-renewable (%)	-12.5	-7.8
Renewable (%)	+72.1	-1.0
Total (%)	-10.2	-7.4

Primary energy trade	2016	2021
Imports (TJ)	22 371	17 757
Exports (TJ)	1 452	848
Net trade (TJ)	- 20 919	- 16 909
Imports (% of supply)	129	114
Exports (% of production)	52	48
Energy self-sufficiency (%)	16	11

Total energy supply in 2021

- Oil
- Gas
- Nuclear
- Coal + others
- Renewables

Renewable energy supply in 2021

- Hydro/marine
- Wind
- Solar
- Bioenergy
- Geothermal
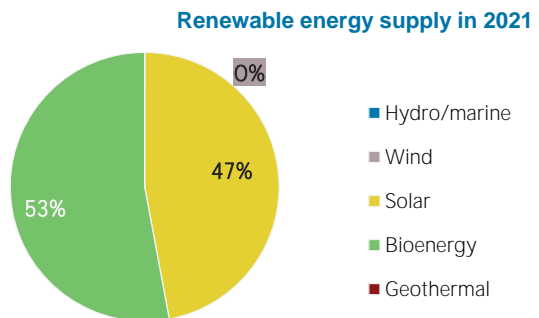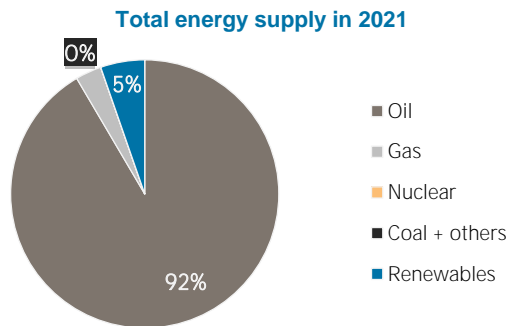
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy

Petajoules (PJ)

Years: 2016, 2017, 2018, 2019, 2020, 2021
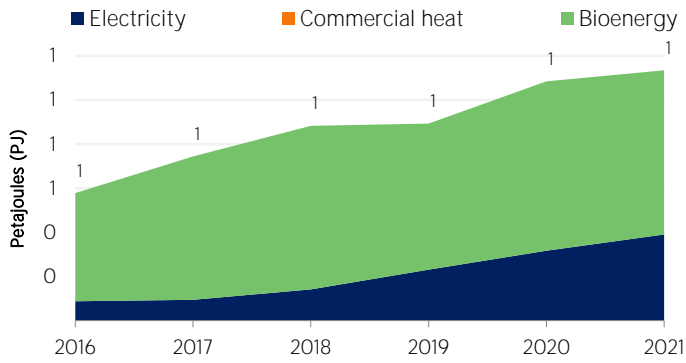
Renewable energy consumption in 2021

Legend: ■ Geothermal ■ Solar direct

- 34%
- 66%

- Industry 35%
- Transport
- Households 12%
- Other 53%
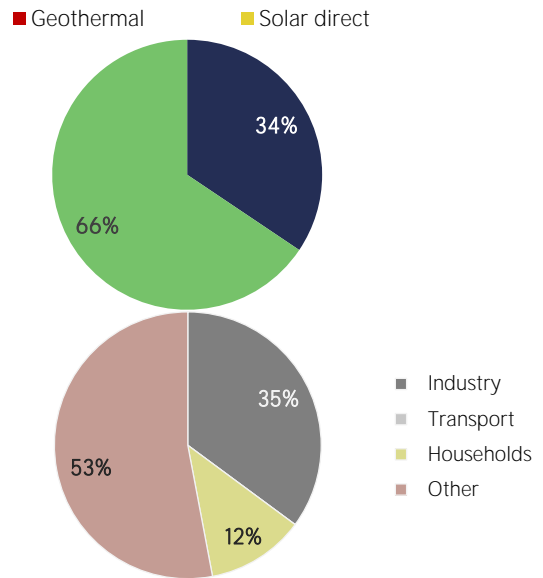
Consumption by sector	2016	2021
Industry (TJ)	280	398
Transport (TJ)	0	0
Households (TJ)	40	135
Other (TJ)	258	601

ELECTRICITY CAPACITY

Installed capacity trend

Legend: ■ Fossil fuels ■ Nuclear ▨ Other Non-RE ■ Hydro/marine ■ Wind ■ Solar ■ Bioenergy ■ Geothermal — Renewable share

Gigawatts (GW) / Renewable share (%)

Values above bars: 0.3, 0.3, 0.3, 0.3, 0.3, 0.3, 0.4, 0.4

Years: 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023

Renewable share: 19% / 20%
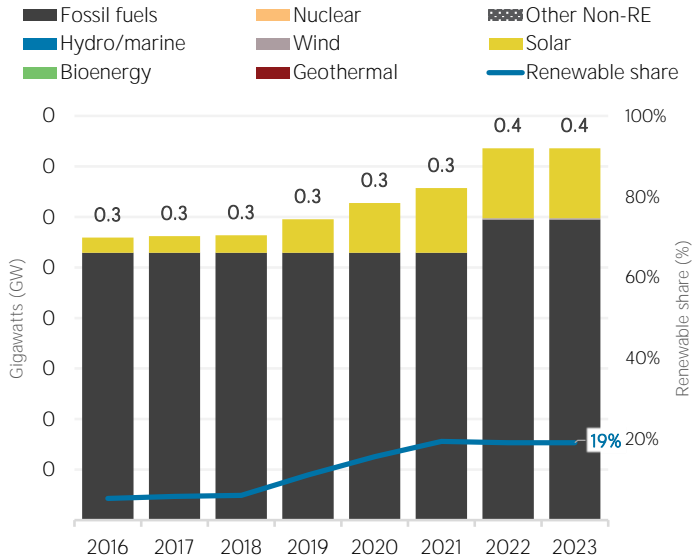
Renewable capacity in 2023

Legend: ■ Hydro/marine ■ Solar ■ Wind ■ Bioenergy ■ Geothermal

- 2%
- 98%
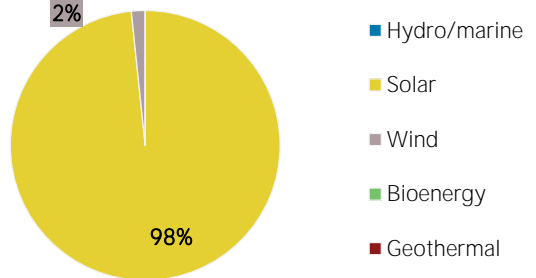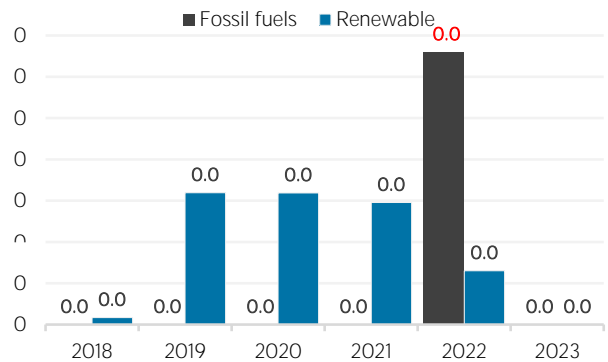
Net capacity change in 2023 (MW)

Non-renewable **0**	Hydro and marine **0**
Solar **0**	Wind **0**
Bioenergy **0**	Geothermal **0**

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

0.0

Years: 2018, 2019, 2020, 2021, 2022, 2023

Values: 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0
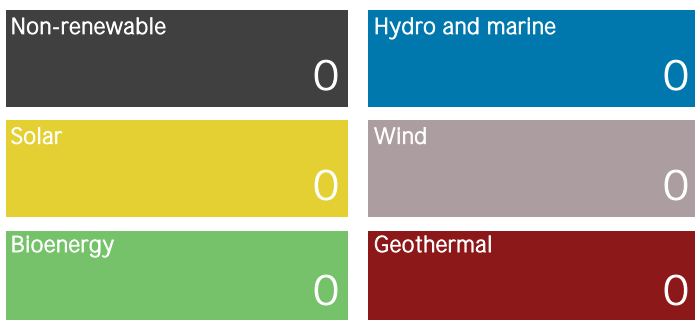
Capacity utilisation in 2022 (%)

- Fossil fuels 48%
- Nuclear
- Hydro/Marine
- Solar 19%
- Wind 1%
- Bioenergy
- Geothermal

Axis: 0, 20, 40, 60, 80, 100
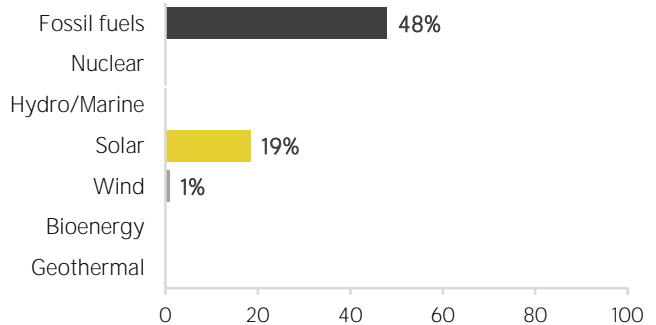
ELECTRICITY GENERATION

Generation in 2022

Generation in 2022	GWh	%
Non-renewable	1 182	92
Renewable	108	8
Hydro and marine	0	0
Solar	108	8
Wind	0	0
Bioenergy	0	0
Geothermal	0	0
Total	1 290	100

Electricity generation trend

Legend: Fossil fuels, Nuclear, Other Non-RE, Hydro/marine, Wind, Solar, Bioenergy, Geothermal, Renewable share

Per capita electricity generation (kWh)

Legend: Total, Renewable
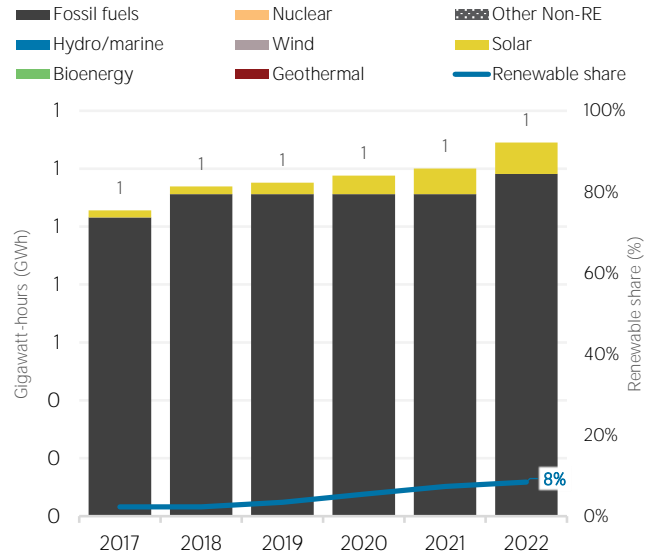
LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 National Energy Policy for Barbados 2017 - 2037 — **2017**

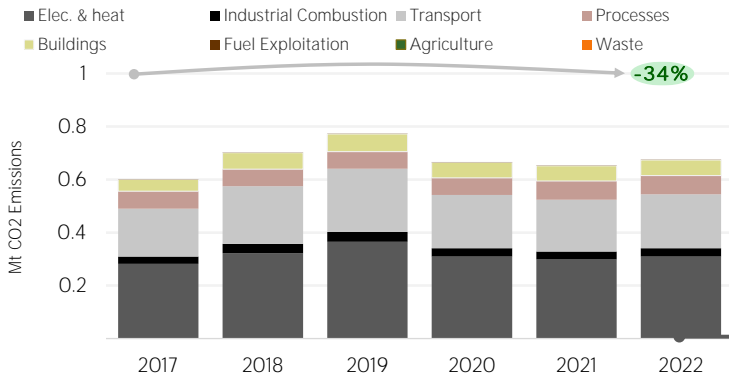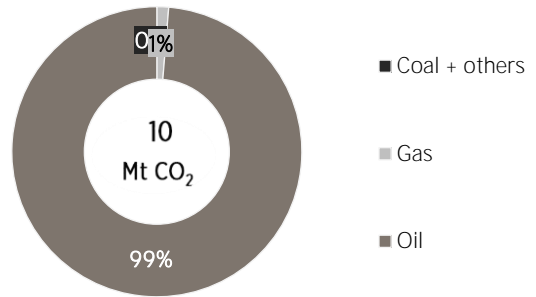2 Sustainable Energy Framework for Barbados — **2009**
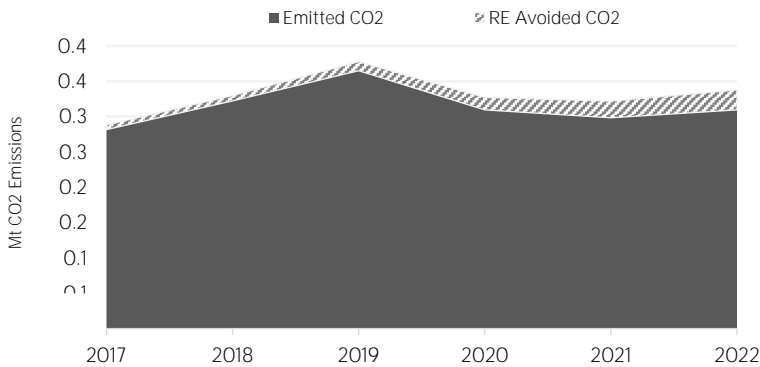
3

4

5

ENERGY AND EMISSIONS

CO_2 emissions by sector

Legend: Elec. & heat, Industrial Combustion, Transport, Processes, Buildings, Fuel Exploitation, Agriculture, Waste

-34%

Elec. & heat generation CO_2 emissions in

10 Mt CO_2

99% Oil, 0 1%

Legend: Coal + others, Gas, Oil

Avoided emissions from renewable elec. & heat

Legend: Emitted CO2, RE Avoided CO2

Avoided emissions based on fossil fuel mix used for power

CO_2 emission factor for elec. & heat generation

Legend: BRB, Central America and the Caribbean, World

267 ... 240
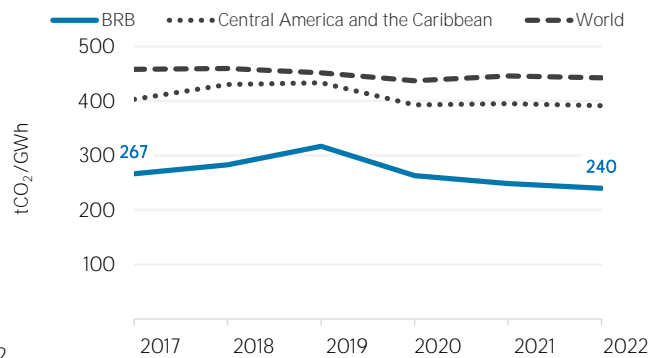
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential

World   Barbados

Proportion of land area

100%
80%
60%
40%
20%

<1.2 | 1.2 - 1.4 | 1.4 - 1.6 | 1.6 - 1.8 | 1.8 - 1.9 | 1.9 - 2.0 | >2.0

Annual generation per unit of installed PV capacity (MWh/kWp)
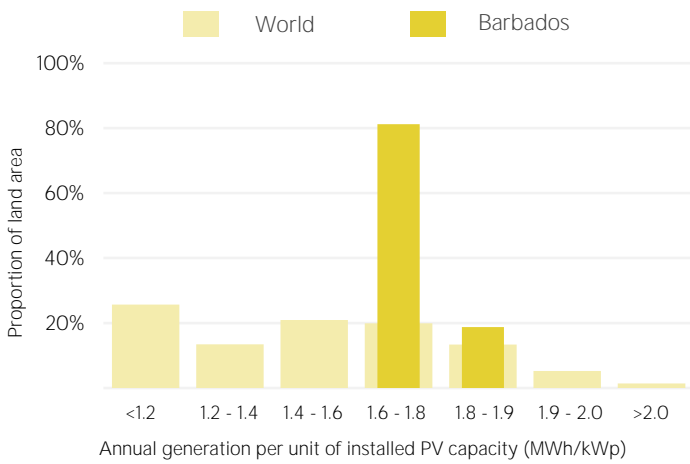
Distribution of wind potential

World   Barbados

Proportion of land area

100%
80%
60%
40%
20%

<260 | 260-420 | 420-560 | 560-670 | 670-820 | 820-1060 | >1060

Wind power density at 100m height (W/m^2)
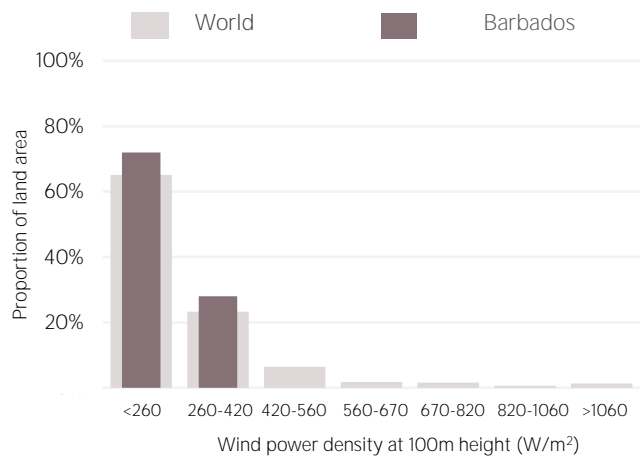
Biomass potential: net primary production

5   6
4   7
3   8
2   9
1   10
0   11

8.5
tC/ha/yr

● = Global average of 3-4 tC/ha/yr
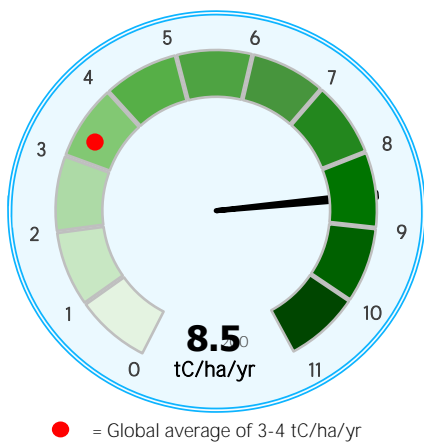
Indicators of renewable resource potential

Solar PV: Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

Onshore wind: Potential wind power density (W/m^2) is shown in the seven classes used by NREL, measured at a height of 100m. The bar chart shows the distribution of the country's land area in each of these classes compared to the global distribution of wind resources. Areas in the third class or above are considered to be a good wind resource.

Biomass: Net primary production (NPP) is the amount of carbon fixed by plants and accumulated as biomass each year. It is a basic measure of biomass productivity. The chart shows the average NPP in the country (tC/ha/yr), compared to the global average NPP of 3-4 tonnes of carbon

IRENA
International Renewable Energy Agency