Paraguay

IRENA
International Renewable Energy Agency

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 (PM₂.₅)
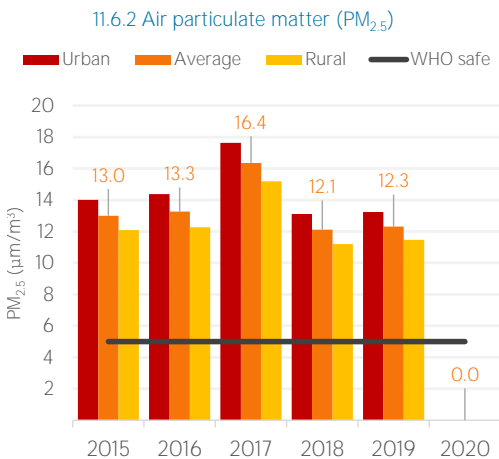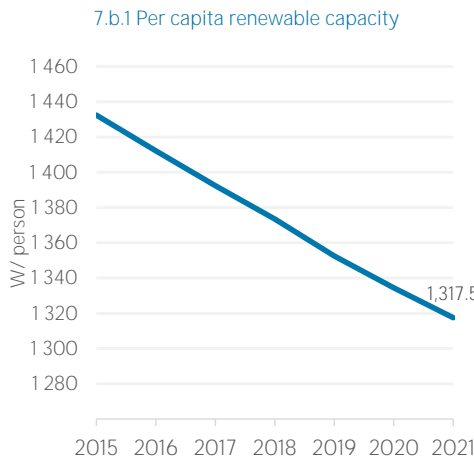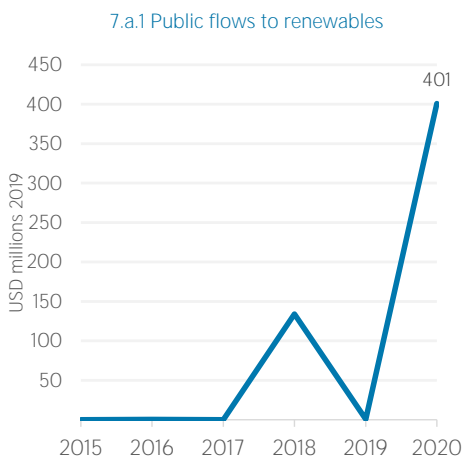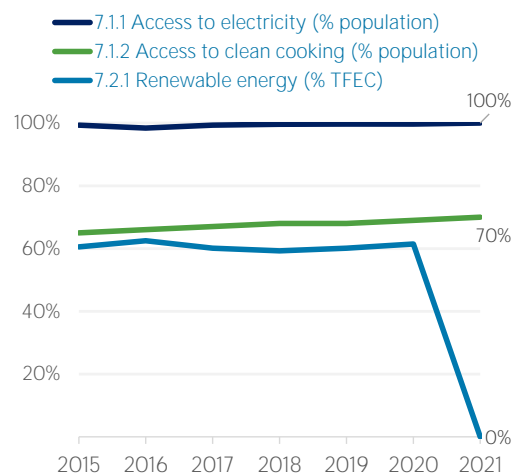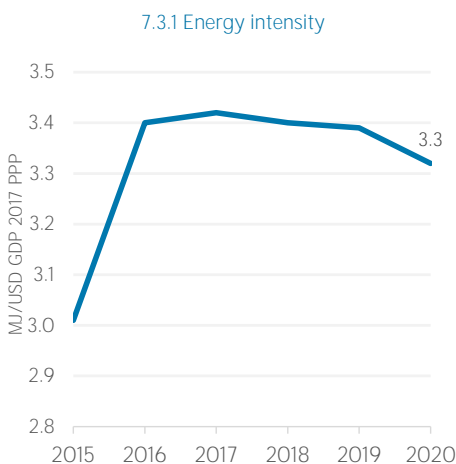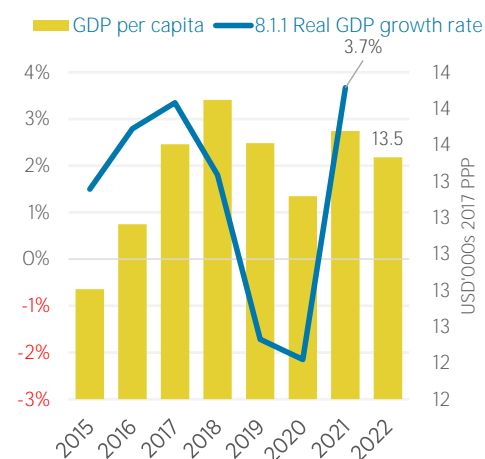
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2015	2020
Non-renewable (TJ)	82 240	102 266
Renewable (TJ)	227 560	168 457
Total (TJ)	309 801	270 723
Renewable share (%)	73	62

Growth in TES	2015-20	2019-20
Non-renewable (%)	+24.4	-9.3
Renewable (%)	-26.0	-6.6
Total (%)	-12.6	-7.6

Primary energy trade	2015	2020
Imports (TJ)	84 049	105 288
Exports (TJ)	151 068	103 906
Net trade (TJ)	67 019	- 1 382
Imports (% of supply)	27	39
Exports (% of production)	40	38
Energy self-sufficiency (%)	122	101

Total energy supply in 2020
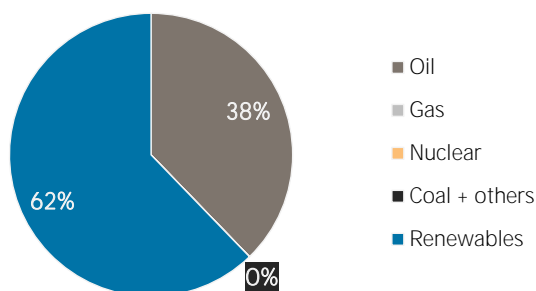
Renewable energy supply in 2020
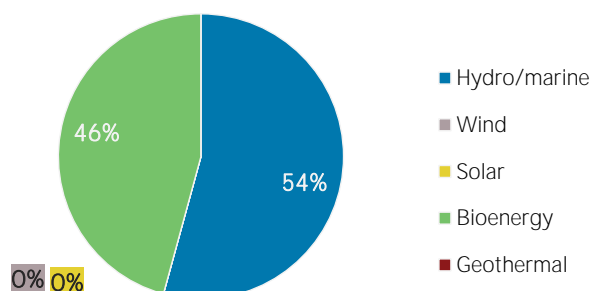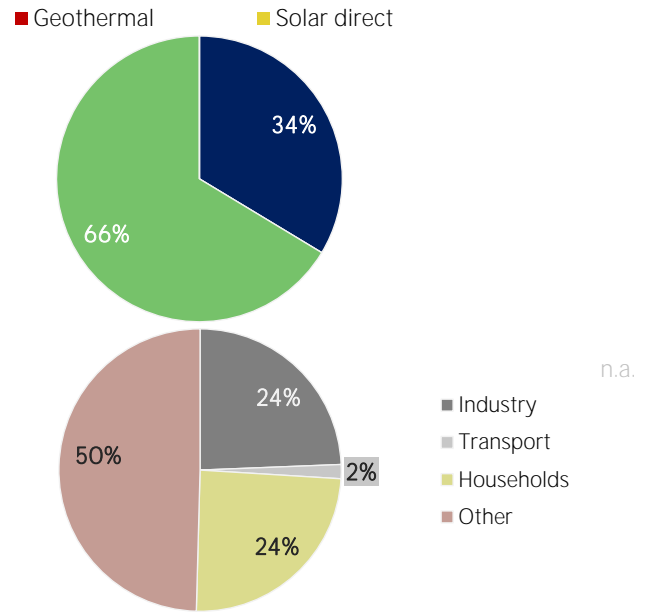
RENEWABLE ENERGY CONSUMPTION (TFEC)
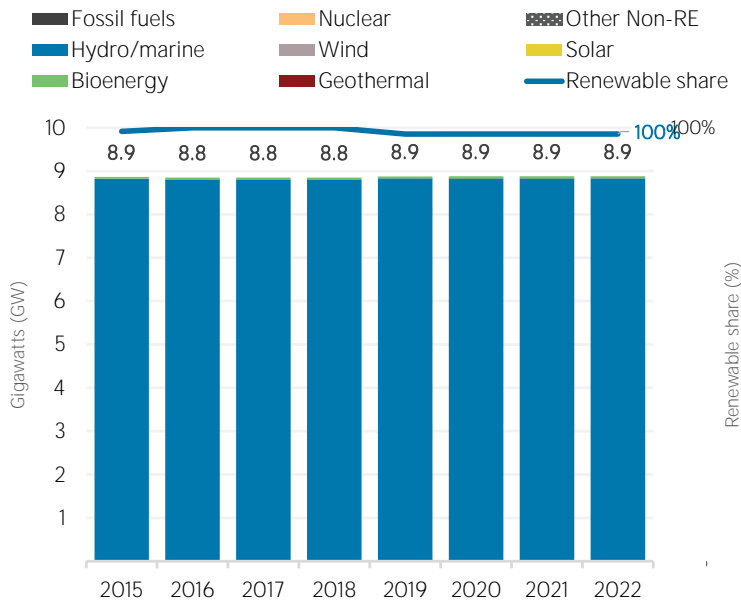
Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy ■ Geothermal ■ Solar direct

Petajoules (PJ)

Year	Value
2015	577
2016	587
2017	573
2018	521
2019	473
2020	437

Renewable energy consumption in 2020

Pie chart: 66%, 34%

Pie chart: Industry 24%, Transport 2%, Households 24%, Other 50%

Legend: ■ Industry ■ Transport ■ Households ■ Other

n.a.
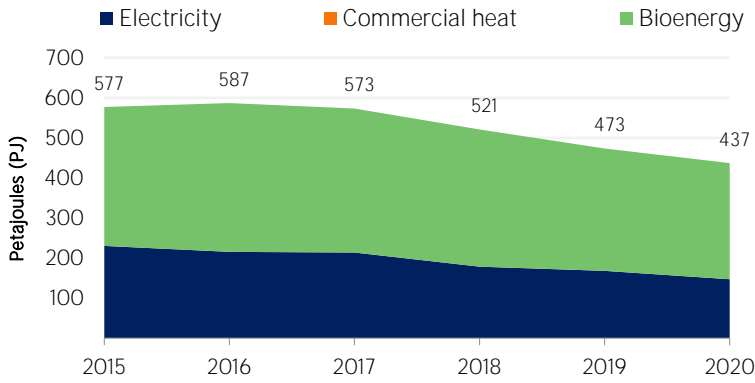
Consumption by sector	2015	2020
Industry (TJ)	148 771	106 533
Transport (TJ)	5 030	7 053
Households (TJ)	149 844	106 871
Other (TJ)	273 252	216 731

ELECTRICITY CAPACITY

Installed capacity trend

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

Gigawatts (GW) / Renewable share (%)

Year	Value	Renewable share
2015	8.9	100%
2016	8.8	
2017	8.8	
2018	8.8	
2019	8.9	
2020	8.9	
2021	8.9	
2022	8.9	100%

Renewable capacity in 2022

Pie chart: Hydro/marine 100%, Solar 0%

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

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

Year	Fossil fuels	Renewable
2017	0.0	0.0
2018	0.0	0.0
2019	0.0	0.0
2020	0.0	0.0
2021	0.0	0.0
2022	0.0	0.0
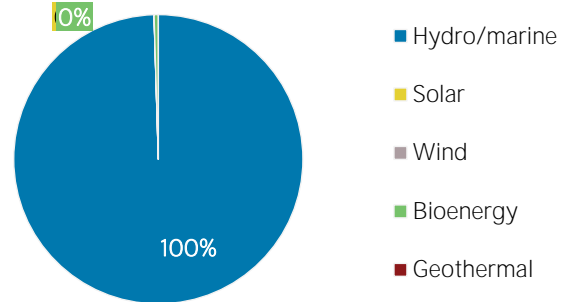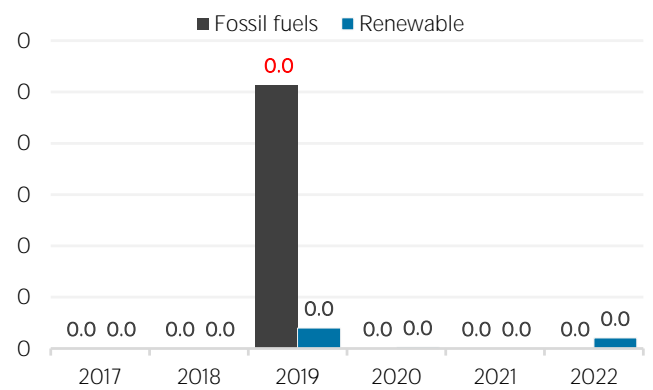
Net capacity change in 2022 (MW)

Non-renewable	0	Hydro and marine	0
Solar	+ 1	Wind	0
Bioenergy	0	Geothermal	0
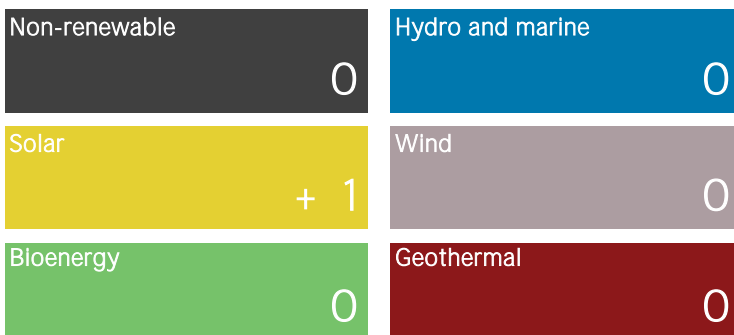
Capacity utilisation in 2021 (%)

Source	%
Fossil fuels	1%
Nuclear	
Hydro/Marine	53%
Solar	57%
Wind	20%
Bioenergy	75%
Geothermal	
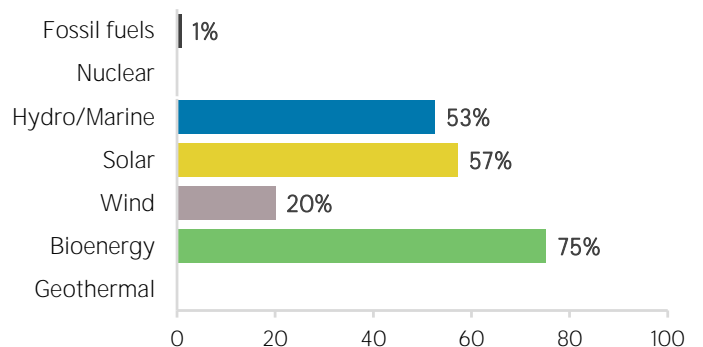
ELECTRICITY GENERATION

Generation in 2021

Generation in 2021	GWh	%
Non-renewable	2	0
Renewable	40 848	100
Hydro and marine	40 574	99
Solar	1	0
Wind	0	0
Bioenergy	273	1
Geothermal	0	0
Total	40 850	100

Per capita electricity generation (kWh)
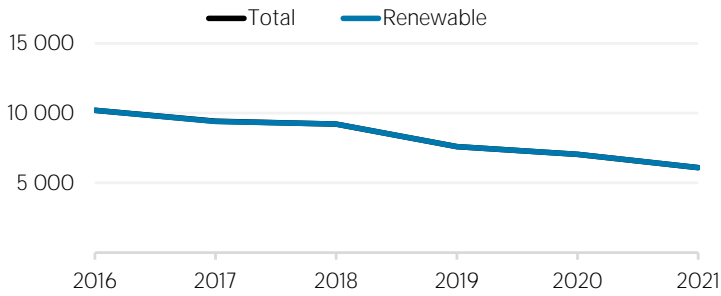
Electricity generation trend

Legend: Fossil fuels, Nuclear, Other Non-RE, Hydro/marine, Wind, Solar, Bioenergy, Geothermal, Renewable share
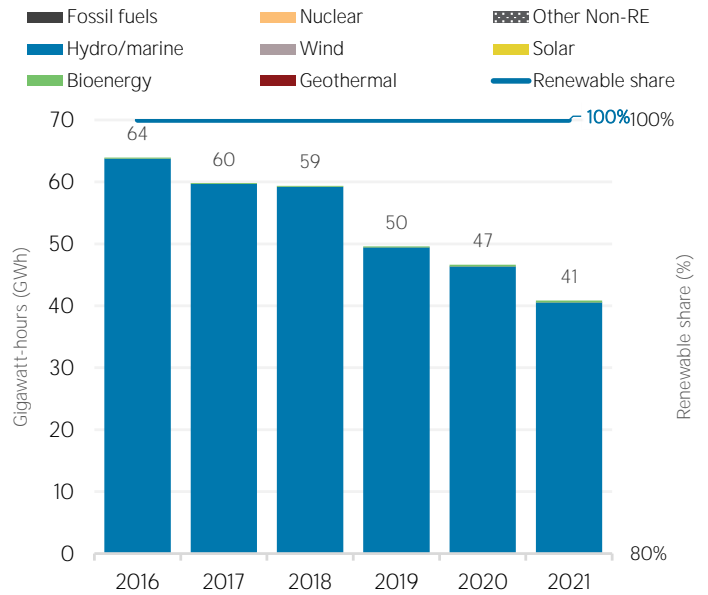
LATEST POLICIES, PROGRAMMES AND LEGISLATION

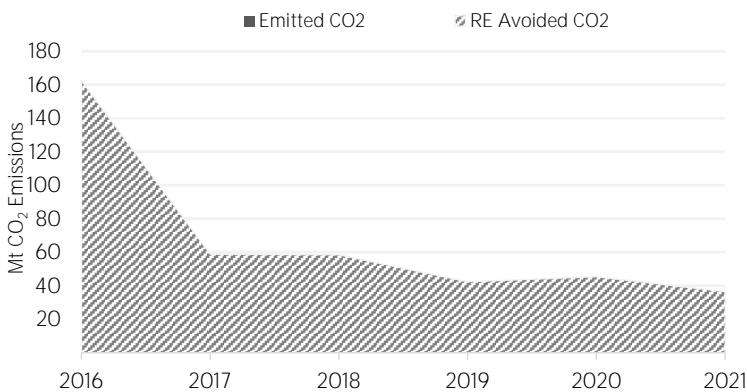|		
1	Paraguay's National Development Plan 2014-2030	2014
2	Law proposal for energy efficiency label for cooling equipment (AC, refrigerators and freezers)	2014
3	Price Stabilization Fund of Biodiesel	2013
4	Energy Access Financing	2011
5	Euro Solar project Law	2008

ENERGY AND EMISSIONS

Energy-related CO_2 emissions by sector

Legend: Elec. & heat, Other Industrial, Transport, Other, Buildings

+17%
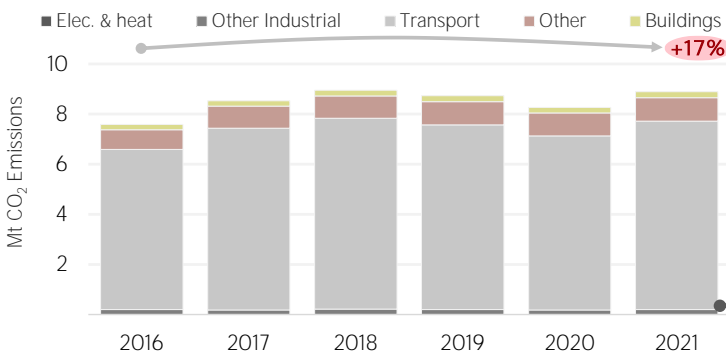
Elec. & heat generation CO_2 emissions in

0%
0.0 Mt CO_2
100%

Legend: Coal + others, Gas, Oil
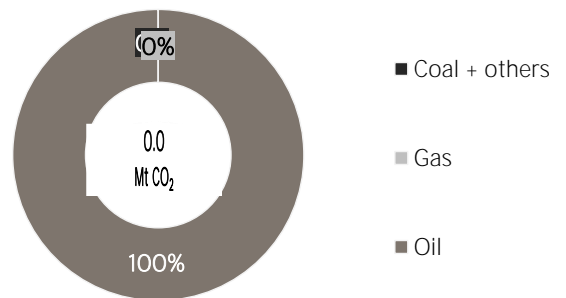
Avoided emissions from renewable elec. & heat

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: PRY, South America, World
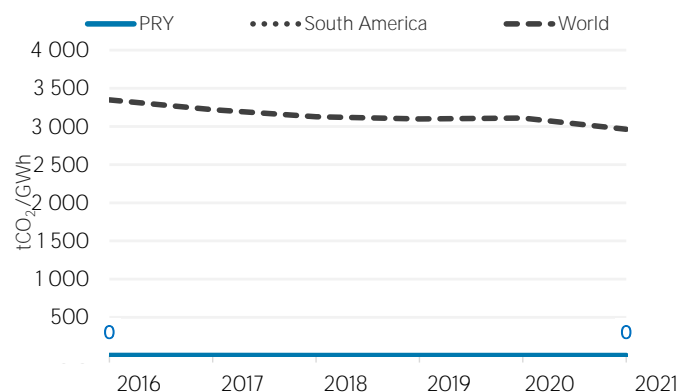
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential

World Paraguay

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)
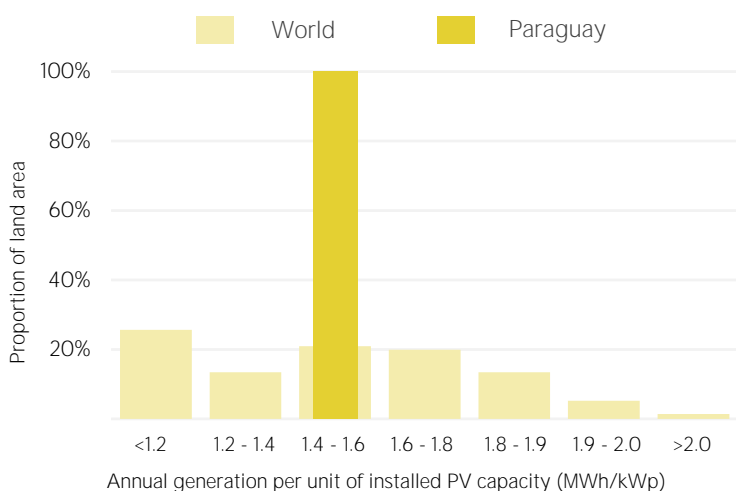
Distribution of wind potential

World Paraguay

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/m²)
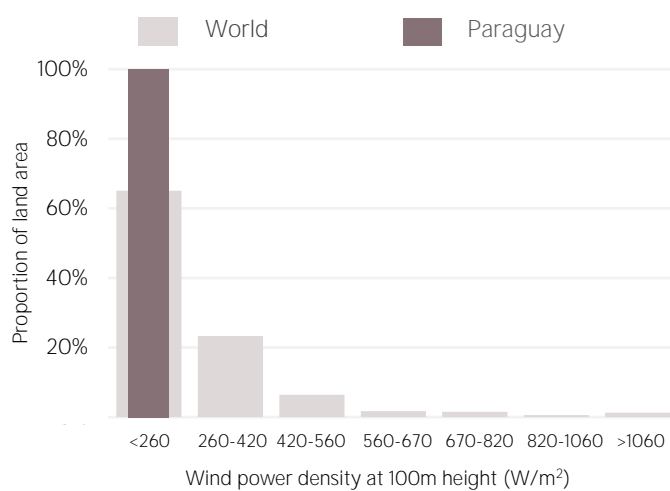
Biomass potential: net primary production

5.5
tC/ha/yr
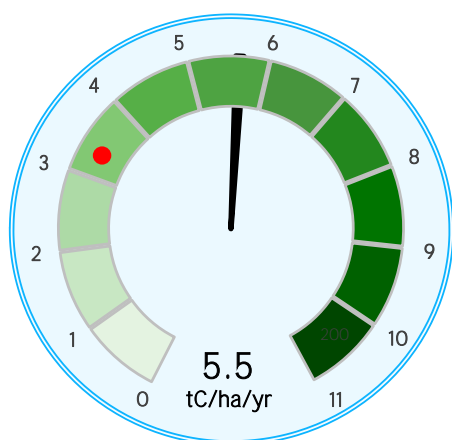
● = Global average of 3-4 tC/ha/yr

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/m²) 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