

Paraguay

Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	59.4	Access to electricity (% of population)	98.4
Energy efficiency (MJ per \$1 of GDP)	4.2	Access to clean cooking (% of population)	65

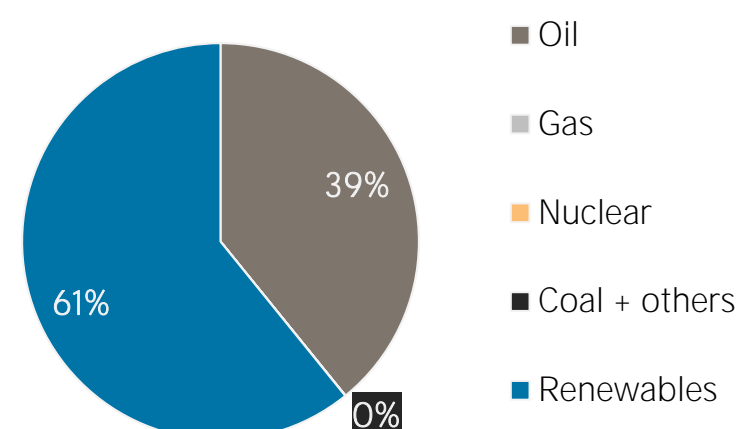
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	72 215	98 042
Renewable (TJ)	174 104	152 217
Total (TJ)	246 320	250 259
Renewable share (%)	71	61

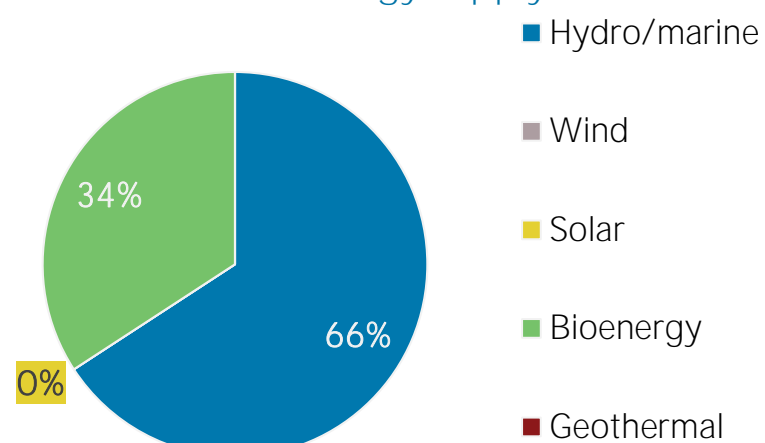
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+35.8	+19.2
Renewable (%)	-12.6	-26.5
Total (%)	+1.6	-13.5

Primary energy trade	2011	2016
Imports (TJ)	68 720	103 386
Exports (TJ)	172 479	177 035
Net trade (TJ)	103 759	73 649
Imports (% of supply)	28	41
Exports (% of production)	50	54
Energy self-sufficiency (%)	141	132
Net trade (USD million)	+ 632	+ 987
Net trade (% of GDP)	+1.9	+2.7

Total primary energy supply in 2016



Renewable energy supply in 2016



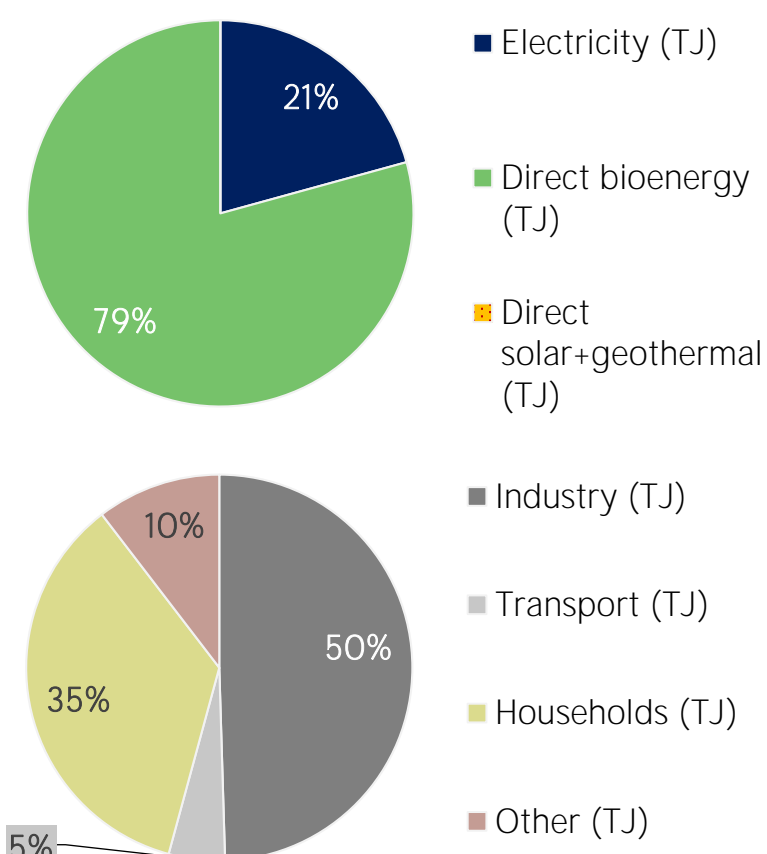
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	36 648	27 387
Direct bioenergy (TJ)	110 558	104 738
Direct solar+geothermal (TJ)	0	0
Total (TJ)	147 206	132 125
Electricity share (%)	25	21

Consumption growth	2011-16	2015-16
Renewable electricity (%)	-25.3	-61.0
Other renewables (%)	-5.3	-6.9
Total (%)	-10.2	-27.7

Consumption by sector	2011	2016
Industry (TJ)	69 378	65 430
Transport (TJ)	3 070	6 219
Households (TJ)	63 592	46 724
Other (TJ)	11 166	13 753
Renewable share of TFEC	63.1	59.4

Renewable energy consumption in 2016

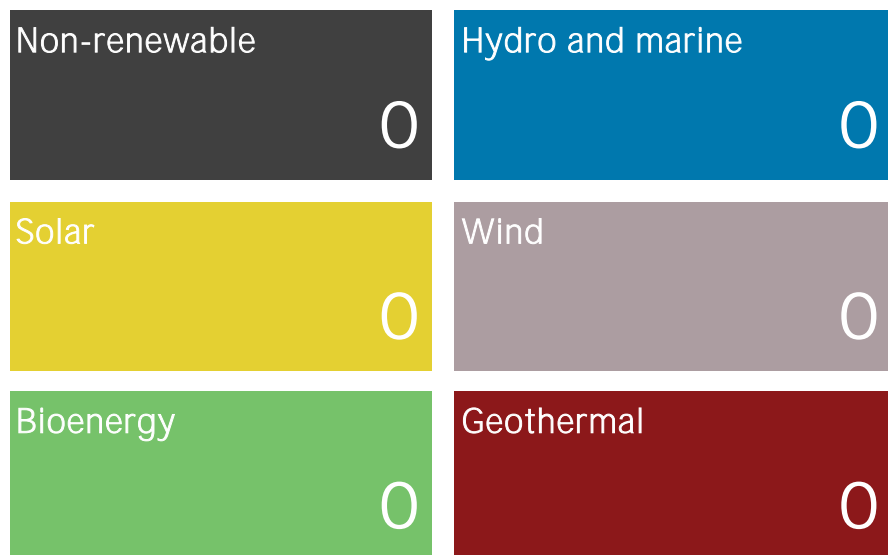


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	1	0
Renewable	8 849	100
Hydro/marine	8 810	100
Solar	0	0
Wind	0	0
Bioenergy	39	0
Geothermal	0	0
Total	8 850	100

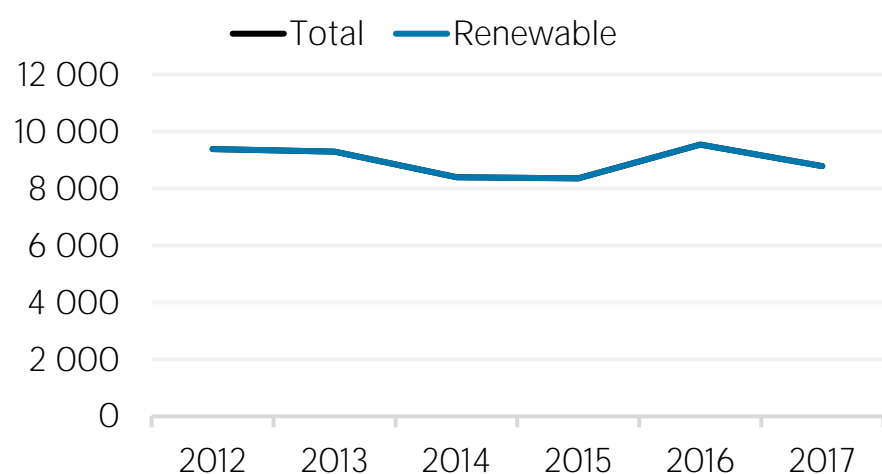
Capacity change (%)	2013-18	2017-18
Non-renewable	- 97	0.0
Renewable	0	0.0
Hydro/marine	0	0.0
Solar	0	0.0
Wind	0	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	- 0	0.0

Net capacity change in 2018 (MW)

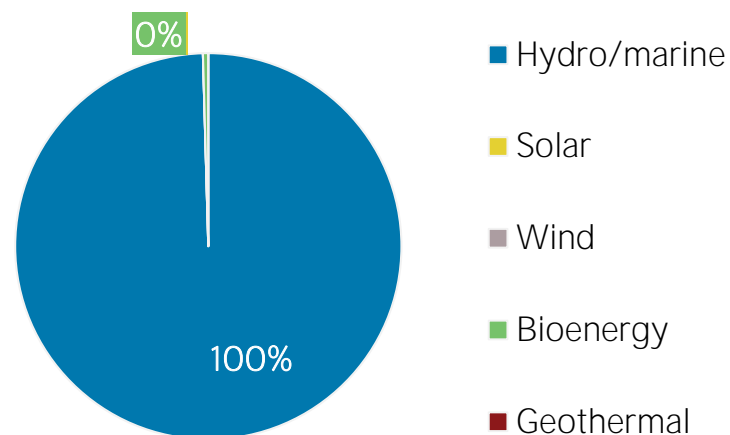


Generation in 2017	GWh	%
Non-renewable	2	0
Renewable	60 366	100
Hydro and marine	59 684	99
Solar	0	0
Wind	0	0
Bioenergy	682	1
Geothermal	0	0
Total	60 367	100

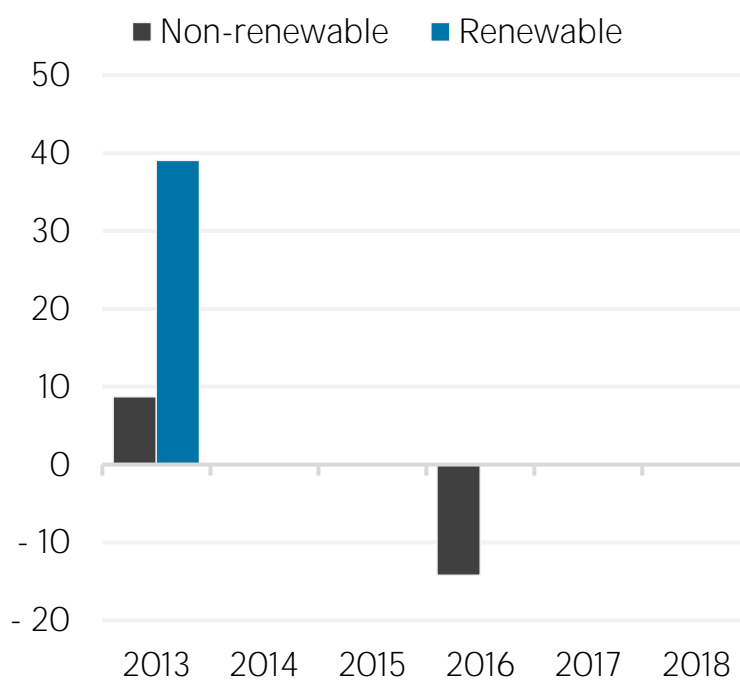
Per capita electricity generation (kWh)



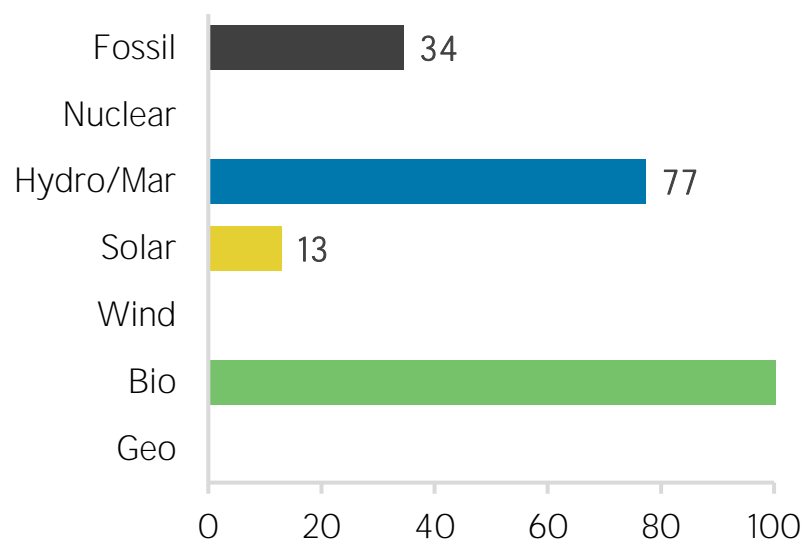
Renewable capacity in 2018



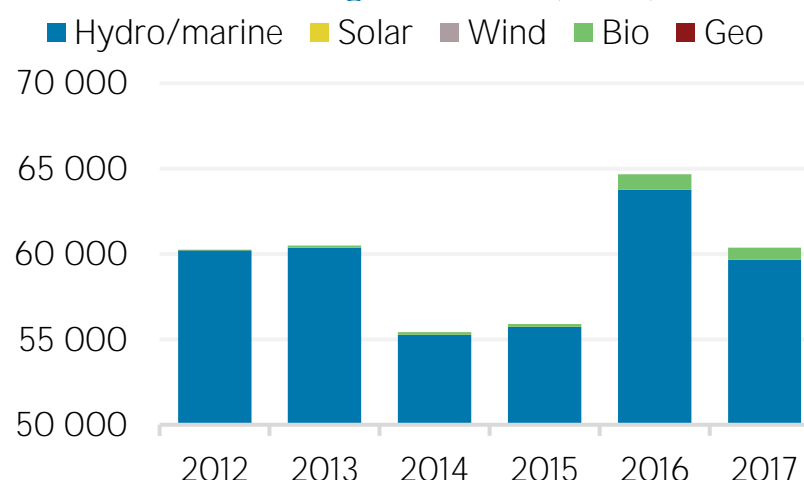
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2030	60	% increase in RE share
Renewable electricity:	2030	30	% increase in RE share
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower			
Off-grid renewable technologies:			
Energy efficiency (Energy):			
Energy efficiency (Electricity):			

Latest policies, programmes and legislation

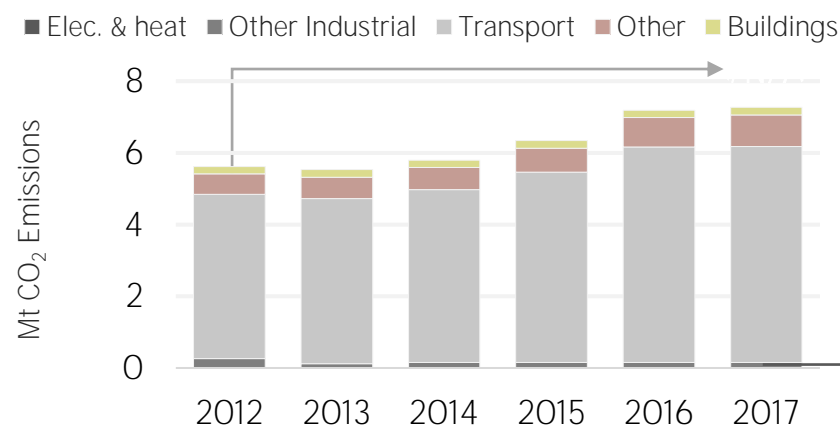
1 Paraguay's National Development Plan 2014-2030	2014
2 Price Stabilization Fund of Biodiesel	2013
3 Energy Access Financing	2011
4 Euro Solar project Law	2008
5 Biofuel Specification	2006

References to sustainable energy in Nationally Determined Contribution (NDC)

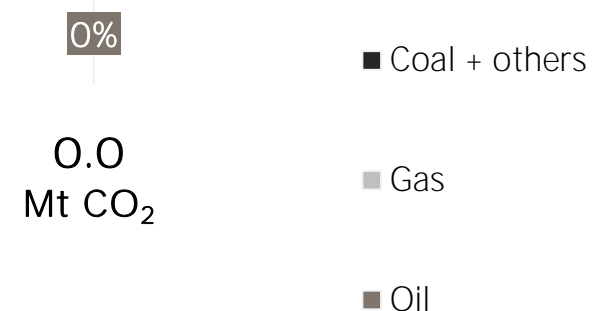
	Conditional	Unconditional	unit
- Renewable energy			
- electricity	30	30	% increase in RE share
- transport			
- heating/cooling			
- Energy efficiency			

ENERGY AND EMISSIONS

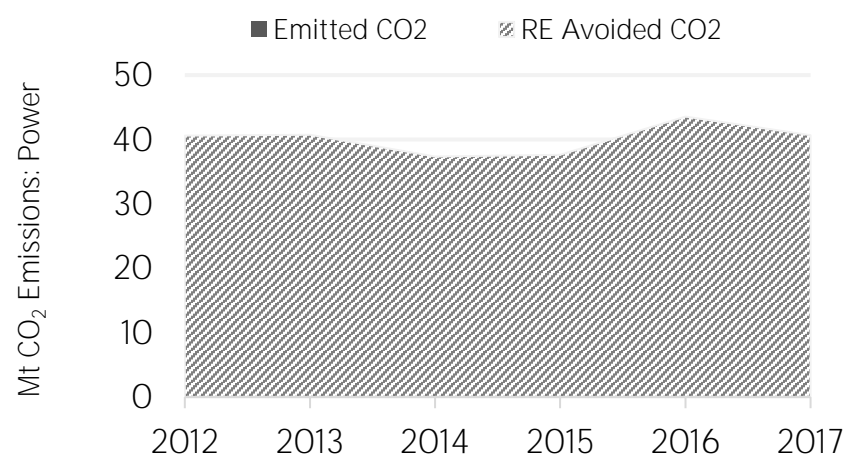
Energy-related CO₂ emissions by sector



Elec. & heat generation CO₂ emissions in 2017

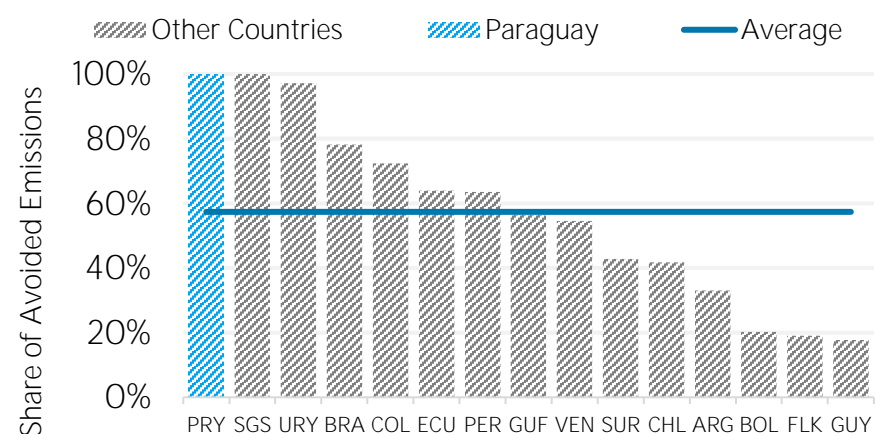


Avoided emissions from renewable power



Avoided emissions based on fossil fuel mix used for power

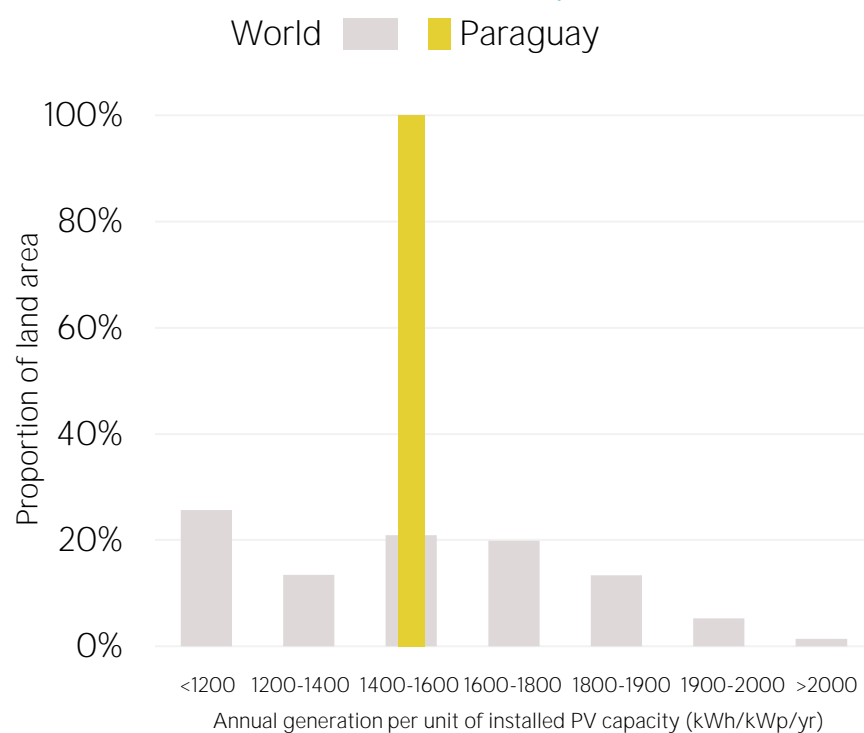
Reduction in power emissions due to RE in 2017



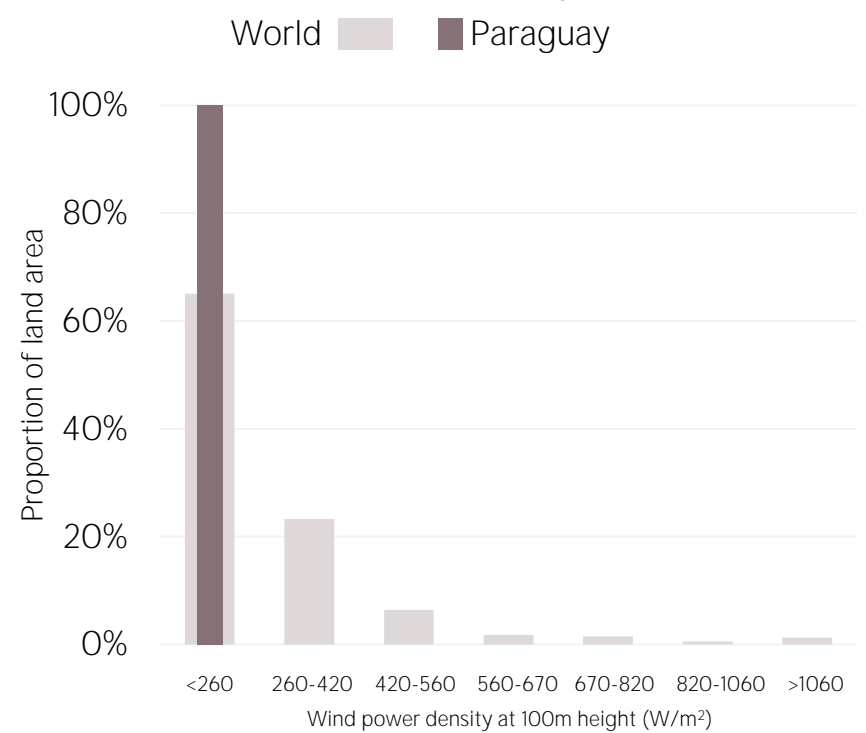
Reduction is RE Avoided divided by sum of avoided and emitted

RENEWABLE RESOURCE POTENTIAL

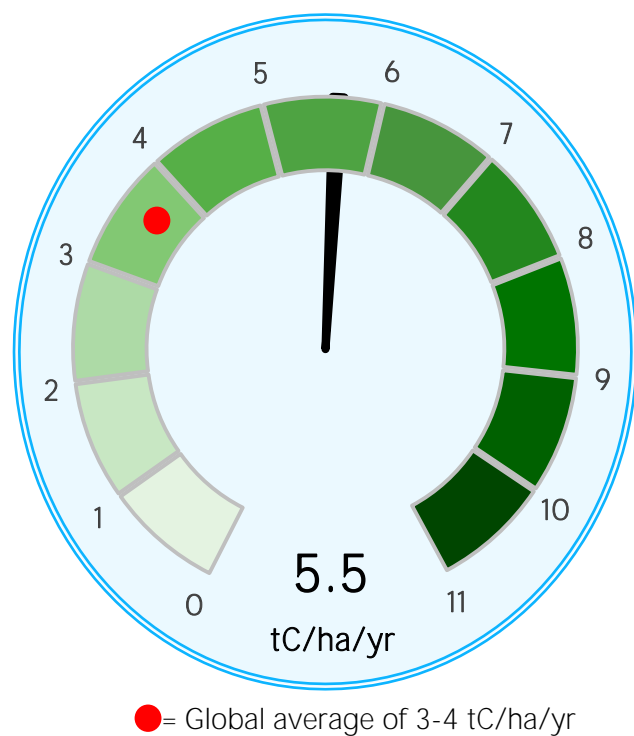
Distribution of solar potential



Distribution of wind potential



Biomass potential: net primary production



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 per year.

Sources: IRENA statistics, plus data from the following sources: UN SDG Indicators Database (original sources: WHO; World Bank; IEA; IRENA; and UNSD); UNSD Energy Balances; UN COMTRADE; World Bank World Development Indicators; EDGAR; REN21 Global Status Report; IEA-IRENA Joint Policies and Measures Database; IRENA Global Atlas; and World Bank Global Solar Atlas and Global Wind Atlas.

Additional notes: Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. The value of energy trade has been defined as including all commodities in Chapter 27 of the Harmonised System (HS). Capacity utilisation has been calculated as annual generation divided by capacity $\times 8,760$. Avoided emissions from renewable power have been calculated as renewable generation divided by fossil fuel generation multiplied by reported emissions from the power sector. This assumes that, if renewable power did not exist, fossil fuels would be used in its place to generate the same amount of power and using the same mix of fossil fuels. In countries and years where no fossil fuel generation occurs, an average fossil fuel emission factor has been used to calculate the avoided emissions.

This note has been produced to provide policy makers with a brief overview of developments in renewable energy in a country. The IRENA statistics team would welcome comments and feedback on its structure and content, which can be sent to statistics@irena.org.

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