

## Ecuador

### Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	15.2	Access to electricity (% of population)	98.7
Energy efficiency (MJ per \$1 of GDP)	3.5	Access to clean cooking (% of population)	>95

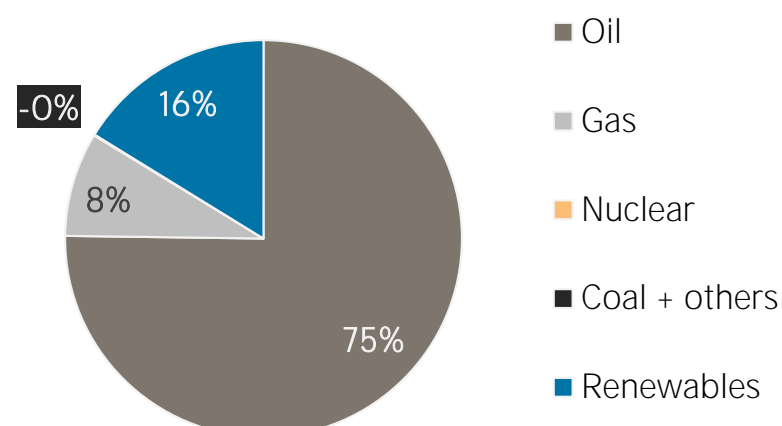
#### TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	470 809	539 958
Renewable (TJ)	78 427	104 696
Total (TJ)	549 237	644 654
Renewable share (%)	14	16

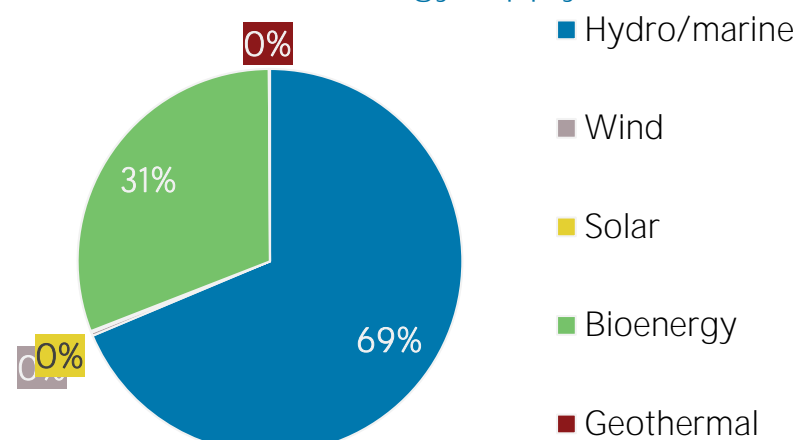
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+14.7	-4.9
Renewable (%)	+33.5	+10.0
Total (%)	+17.4	-2.8

Primary energy trade	2011	2016
Imports (TJ)	171 935	246 216
Exports (TJ)	772 912	911 170
Net trade (TJ)	600 977	664 954
Imports (% of supply)	31	38
Exports (% of production)	65	68
Energy self-sufficiency (%)	216	207
Net trade (USD million)	+ 7 503	+ 2 846
Net trade (% of GDP)	+9.5	+2.8

Total primary energy supply in 2016



Renewable energy supply in 2016



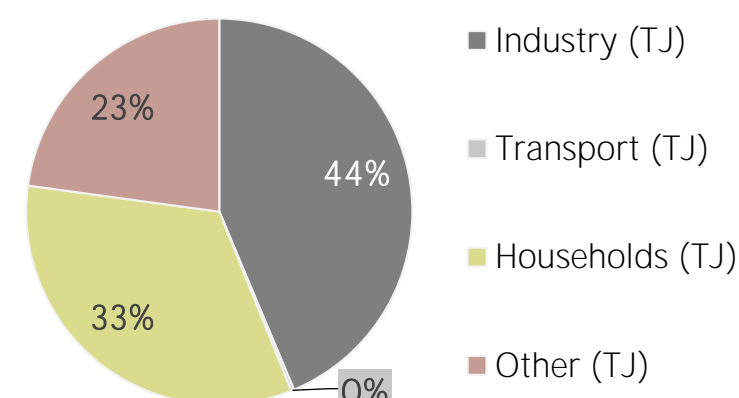
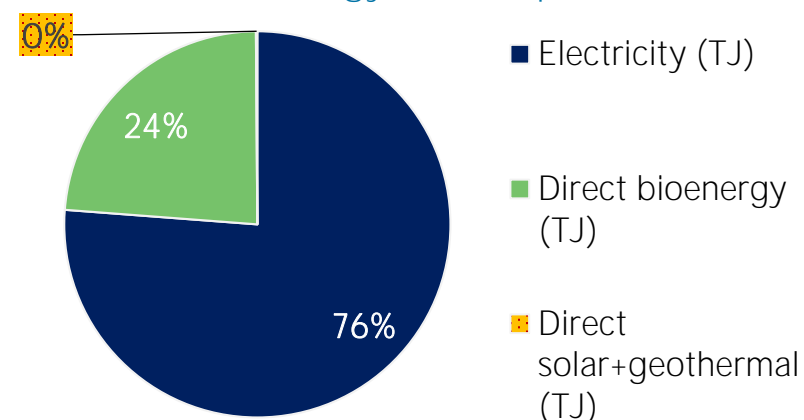
#### RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	40 152	65 267
Direct bioenergy (TJ)	23 470	20 279
Direct solar+geothermal (TJ)	102	102
<b>Total (TJ)</b>	<b>63 724</b>	<b>85 648</b>
Electricity share (%)	63	76

Consumption growth	2011-16	2015-16
Renewable electricity (%)	+62.5	+23.9
Other renewables (%)	-13.6	-17.9
<b>Total (%)</b>	<b>+34.5</b>	<b>+10.6</b>

Consumption by sector	2011	2016
Industry (TJ)	29 156	37 406
Transport (TJ)	156	216
Households (TJ)	23 050	28 463
Other (TJ)	11 363	19 563
Renewable share of TFEC	13.7	15.2

Renewable energy consumption in 2016

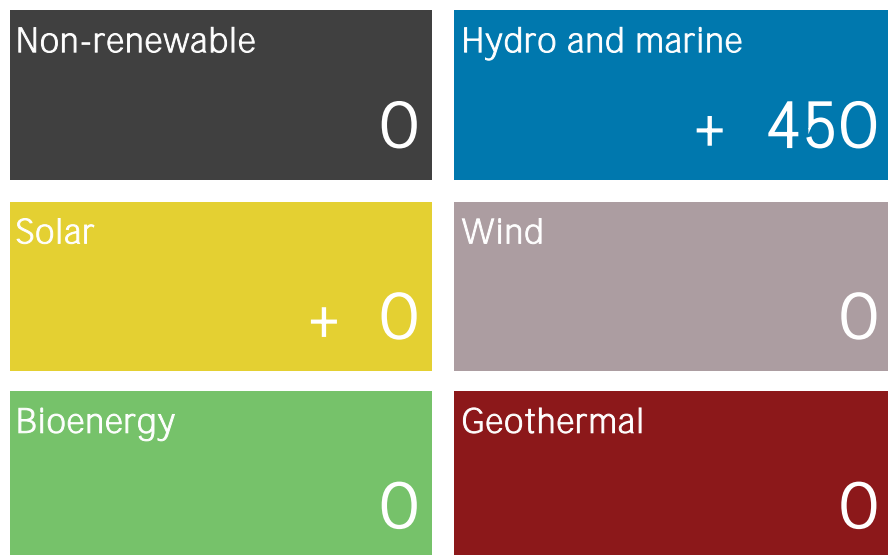


# ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	3 321	39
Renewable	5 164	61
Hydro/marine	4 966	59
Solar	26	0
Wind	21	0
Bioenergy	152	2
Geothermal	0	0
<b>Total</b>	<b>8 485</b>	<b>100</b>

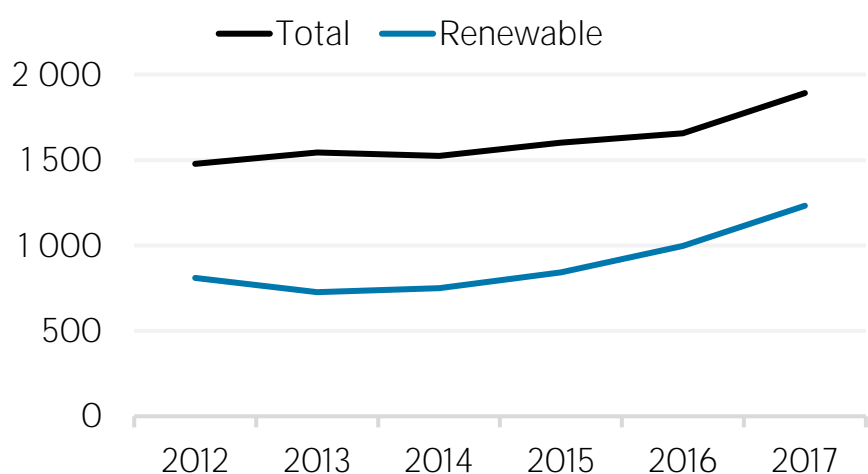
Capacity change (%)	2013-18	2017-18
Non-renewable	+ 7	0.0
Renewable	+ 116	+ 9.5
Hydro/marine	+ 119	+ 10.0
Solar	+ 511	+ 0.1
Wind	+ 12	0.0
Bioenergy	+ 50	0.0
Geothermal	0	0.0
<b>Total</b>	<b>+ 54</b>	<b>+ 5.6</b>

Net capacity change in 2018 (MW)

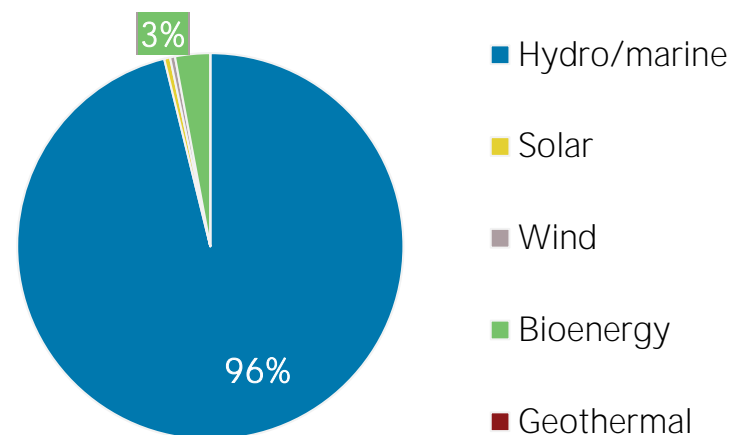


Generation in 2017	GWh	%
Non-renewable	11 070	35
Renewable	20 685	65
Hydro and marine	20 105	63
Solar	41	0
Wind	80	0
Bioenergy	459	1
Geothermal	0	0
<b>Total</b>	<b>31 754</b>	<b>100</b>

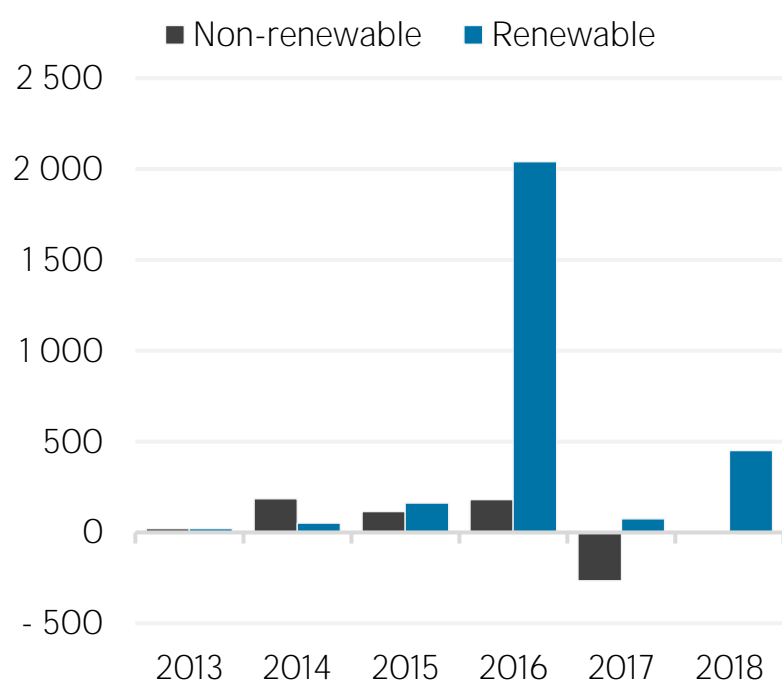
Per capita electricity generation (kWh)



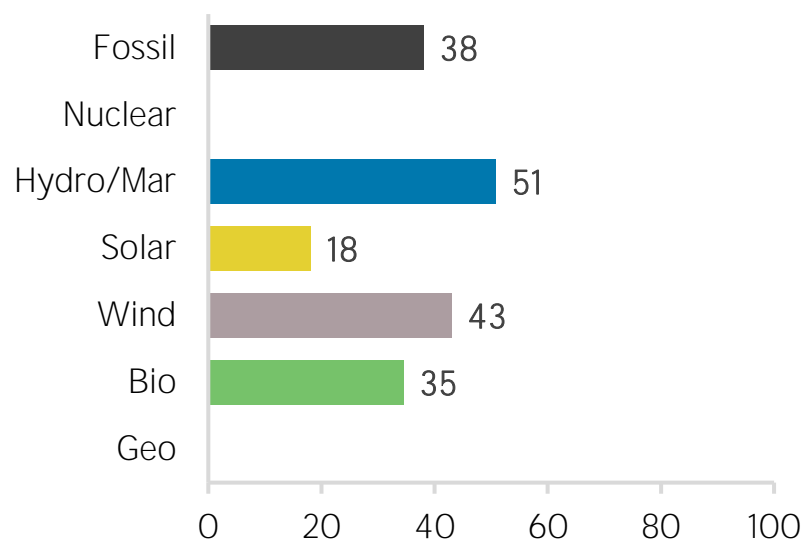
Renewable capacity in 2018



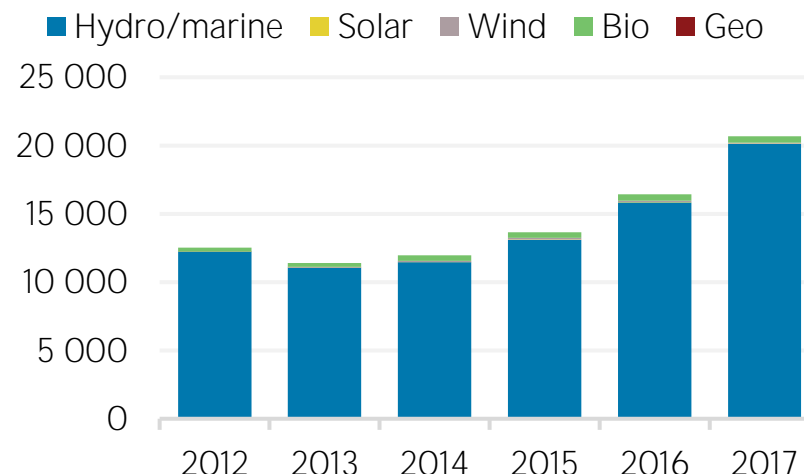
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



## TARGETS, POLICIES AND MEASURES

### Most immediate clean energy targets & NDCs

	year	target	unit
<b>Renewable energy:</b>			
Renewable electricity:	2013	50	%
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2017	90	%
Off-grid renewable technologies:			
Energy efficiency (Energy):			
Energy efficiency (Electricity):			

### Latest policies, programmes and legislation

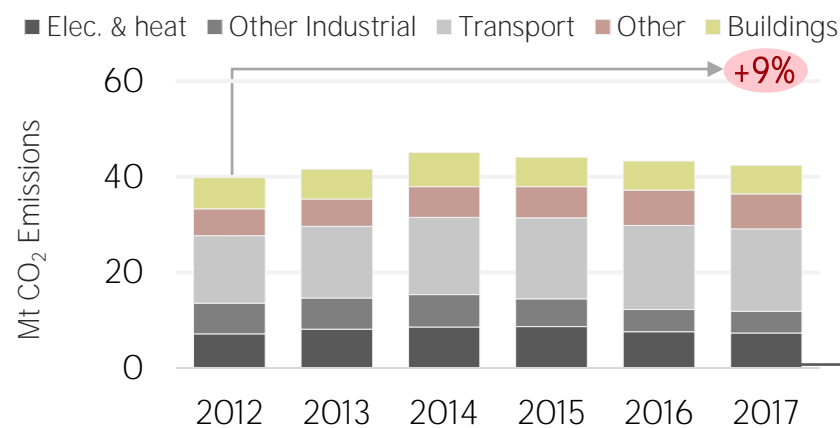
1	Ecuador Energy Efficiency National Plan 2016-2035 (PLANEE)	2017
2	Ecuador Electricity Master Plan 2016-2025 (PME)	2016
3	New Electricity Law (Ley Orgánica del Servicio Publico de energía eléctrica)	2015
4	Ecuador feed-in tariff for renewable energy (Regulación para La participación de los generadores de energía eléctrica producida con Recursos Energéticos Renovables No Convencionales No. CONELEC 001/13)	2013
5	Biodiesel blending mandate (Decree 1303)	2012

### References to sustainable energy in Nationally Determined Contribution (NDC)

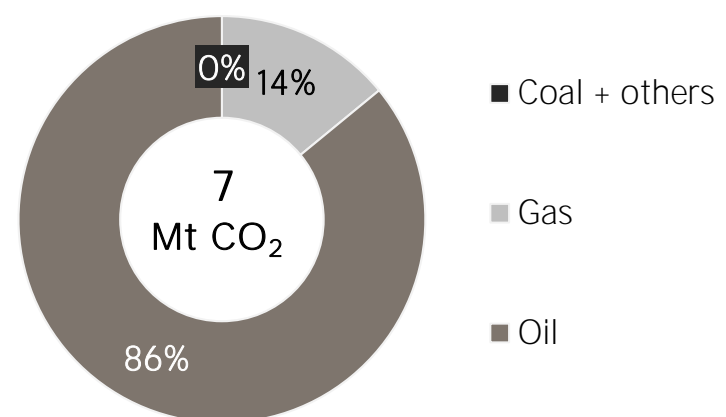
- |                           | Conditional | Unconditional | unit |
|---------------------------|-------------|---------------|------|
| - <b>Renewable energy</b> |             |               |      |
| - electricity             |             |               |      |
| - transport               |             |               |      |
| - heating/cooling         |             |               |      |
| - Energy efficiency       |             |               |      |

## ENERGY AND EMISSIONS

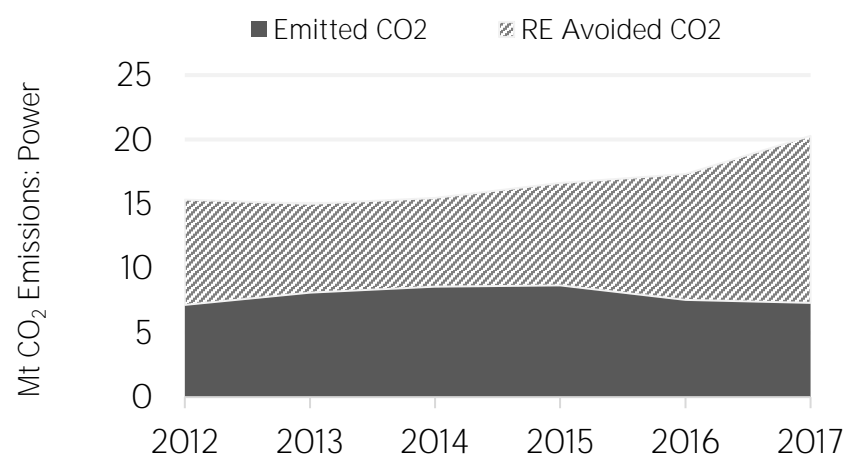
Energy-related CO<sub>2</sub> emissions by sector



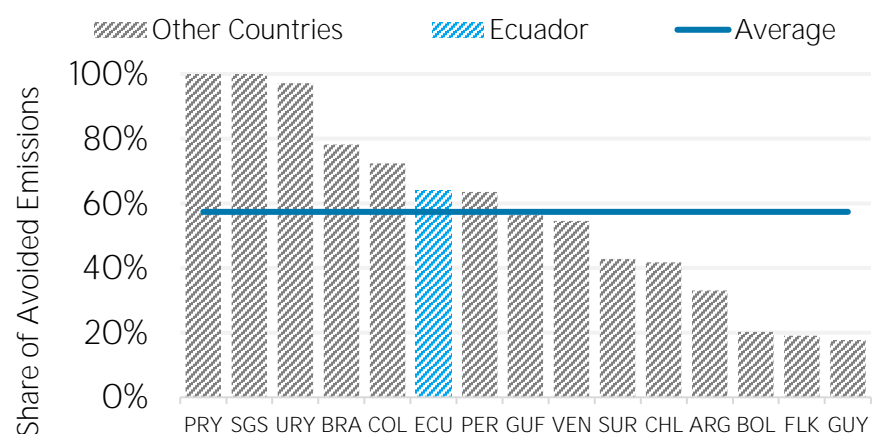
Elec. & heat generation CO<sub>2</sub> emissions in 2017



Avoided emissions from renewable power



Reduction in power emissions due to RE in 2017

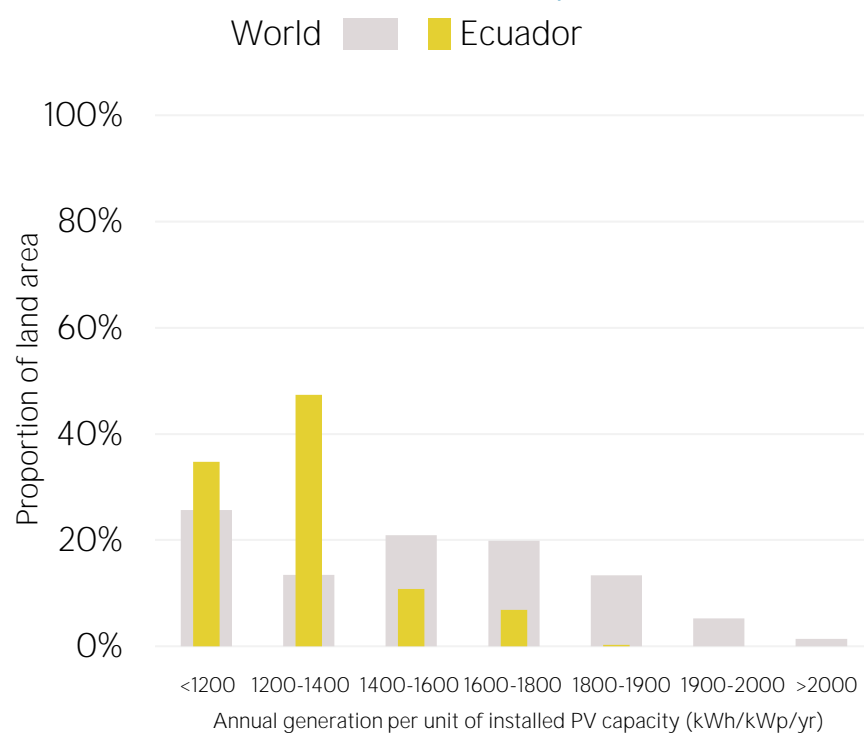


Avoided emissions based on fossil fuel mix used for power

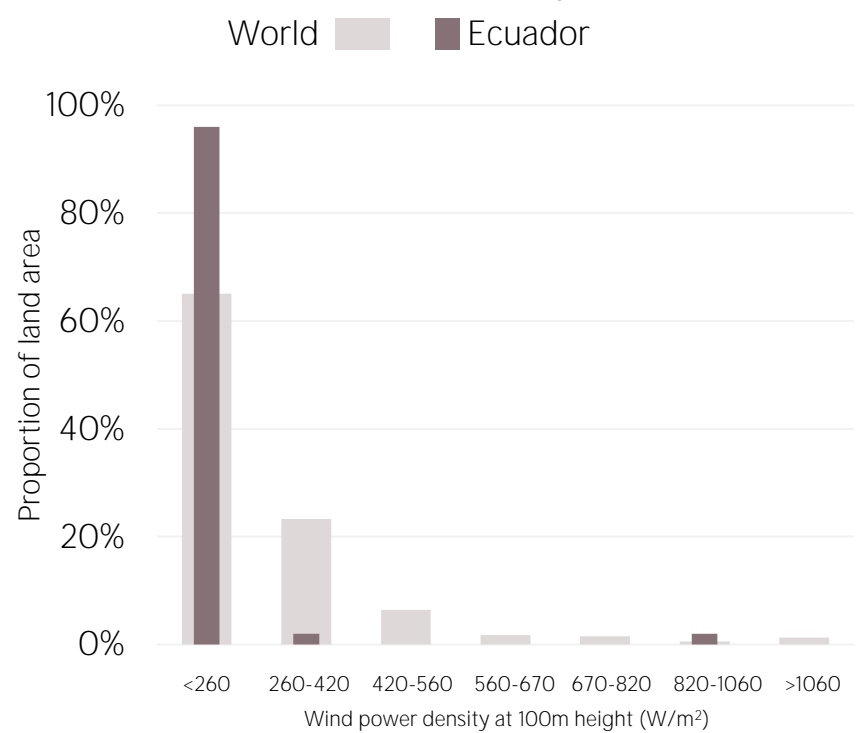
Reduction is RE Avoided divided by sum of avoided and emitted

## RENEWABLE RESOURCE POTENTIAL

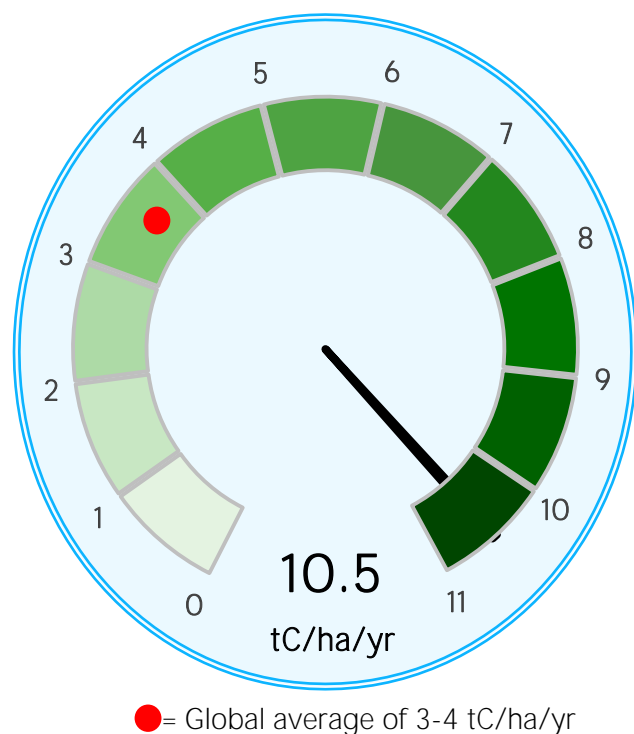
### Distribution of solar potential



### 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 x 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](mailto:statistics@irena.org).

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