

Armenia

Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	14.0	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	5.3	Access to clean cooking (% of population)	>95

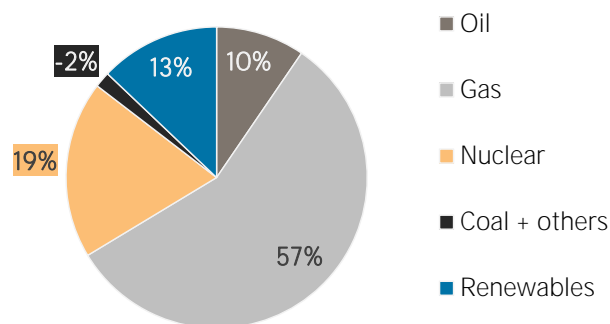
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	108 232	112 936
Renewable (TJ)	25 681	17 398
Total (TJ)	133 913	130 334
Renewable share (%)	19	13

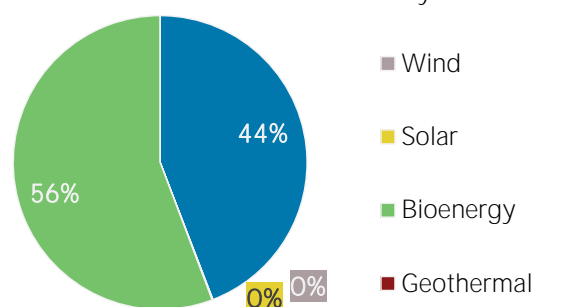
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+4.3	+3.4
Renewable (%)	-32.3	+16.3
Total (%)	-2.7	+4.9

Primary energy trade	2011	2016
Imports (TJ)	90 296	93 762
Exports (TJ)	9 263	5 121
Net trade (TJ)	- 81 033	- 88 641
Imports (% of supply)	67	72
Exports (% of production)	17	12
Energy self-sufficiency (%)	41	34
Net trade (USD million)	- 705	- 506
Net trade (% of GDP)	-6.9	-4.8

Total primary energy supply in 2016



Renewable energy supply in 2016



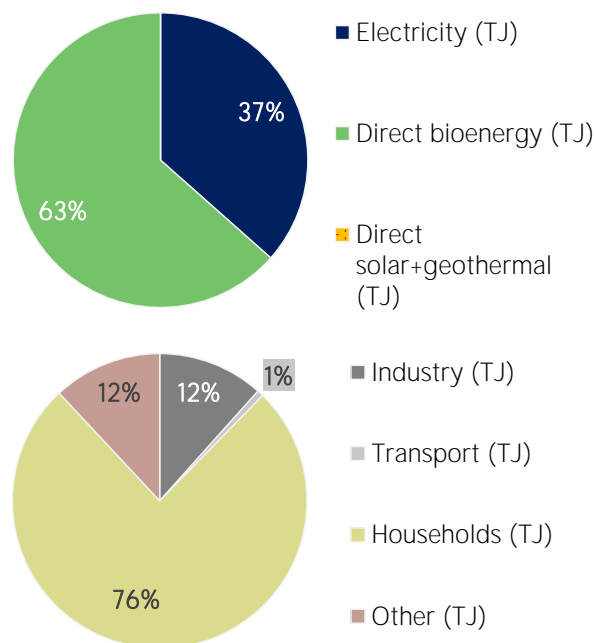
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	5 393	5 938
Direct bioenergy (TJ)	18 946	10 309
Direct solar+geothermal (TJ)	0	0
Total (TJ)	24 339	16 247
Electricity share (%)	22	37

Consumption growth	2011-16	2015-16
Renewable electricity (%)	+10.1	+1.0
Other renewables (%)	-45.6	+33.2
Total (%)	-33.2	+19.3

Consumption by sector	2011	2016
Industry (TJ)	1 134	1 889
Transport (TJ)	126	111
Households (TJ)	20 949	12 305
Other (TJ)	2 131	1 942
Renewable share of TFEC	8.0	14.0

Renewable energy consumption in 2016

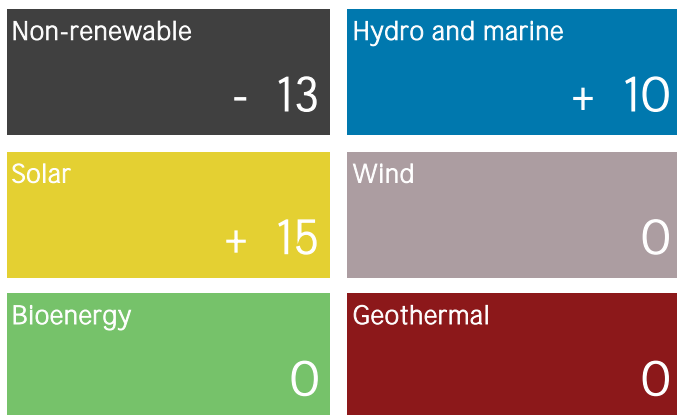


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	2 234	62
Renewable	1 357	38
Hydro/marine	1 336	37
Solar	17	0
Wind	3	0
Bioenergy	0	0
Geothermal	0	0
Total	3 591	100

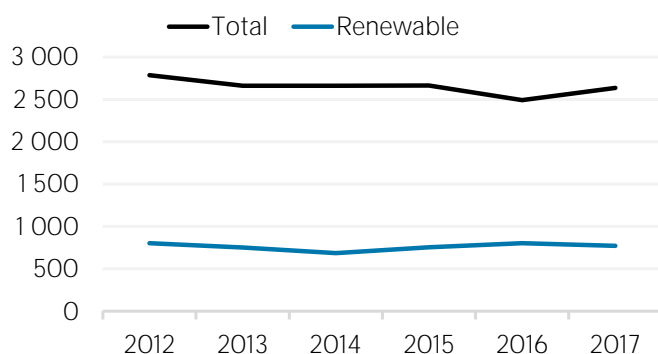
Capacity change (%)	2013-18	2017-18
Non-renewable	- 20	- 0.6
Renewable	+ 5	+ 1.8
Hydro/marine	+ 4	+ 0.7
Solar	0	+ 621.7
Wind	+ 11	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	- 12	+ 0.3

Net capacity change in 2018 (MW)

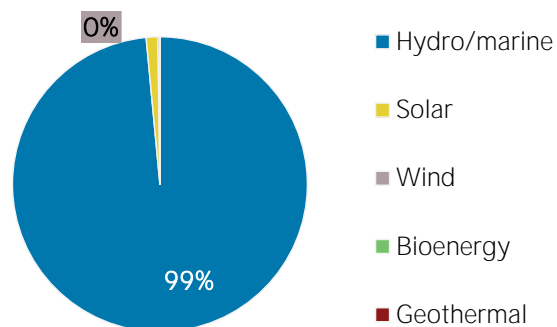


Generation in 2017	GWh	%
Non-renewable	5 491	71
Renewable	2 274	29
Hydro and marine	2 269	29
Solar	3	0
Wind	2	0
Bioenergy	0	0
Geothermal	0	0
Total	7 765	100

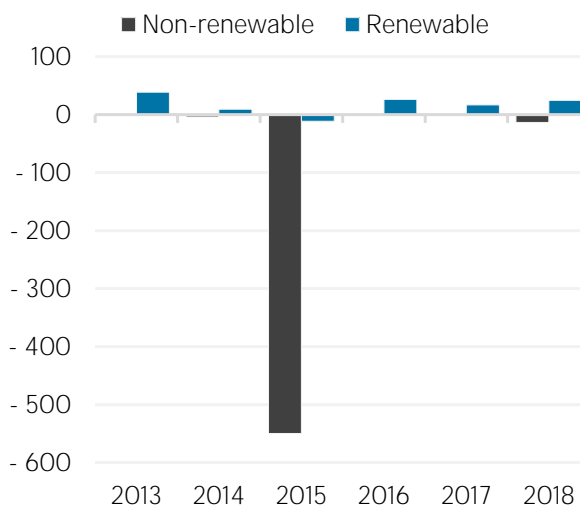
Per capita electricity generation (kWh)



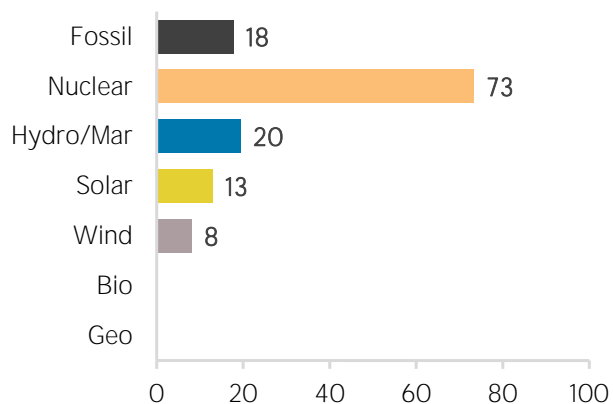
Renewable capacity in 2018



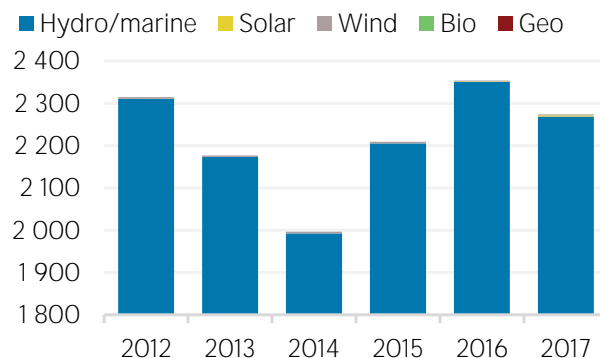
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:			
Renewable electricity:	2020	21	%
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2020	337	MW
Off-grid renewable technologies:			

Energy efficiency (Energy):

Energy efficiency (Electricity):

Latest policies, programmes and legislation

1	Scaling Up Renewable Energy Program for Armenia (SREP Armenia)	2014
2	The Law on Changes and Amendments to The Energy Law of RA	2013
3	The Strategic Development Program of Hydro energy Sector of the Republic of Armenia	2011
4	The Action Plan of the Government of Republic of Armenia Aimed at the Implementation of the National Program on Energy Saving and Renewable Energy of Republic of Armenia	2010
5	Action Plan of the Ministry of Energy and Natural Resources of the RA Stipulated by the Provisions of the National Security Strategies of Armenia	2007

References to sustainable energy in Nationally Determined Contribution (NDC)

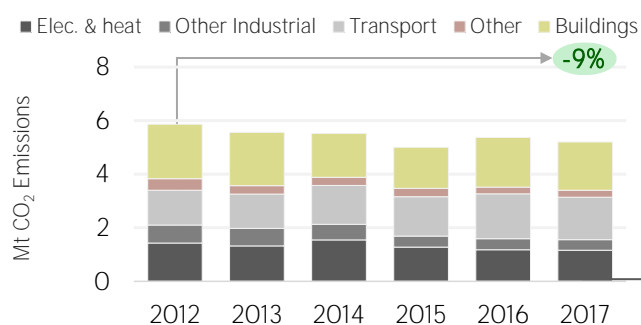
- Renewable energy

- electricity
- transport
- heating/cooling
- Energy efficiency

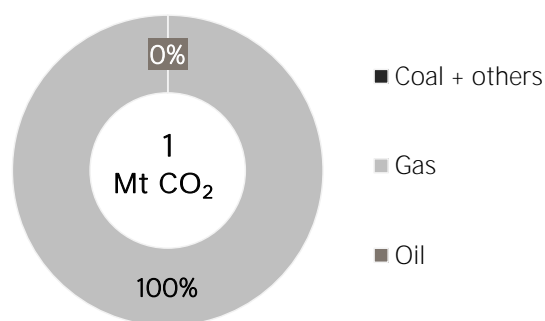
Conditional Unconditional unit

ENERGY AND EMISSIONS

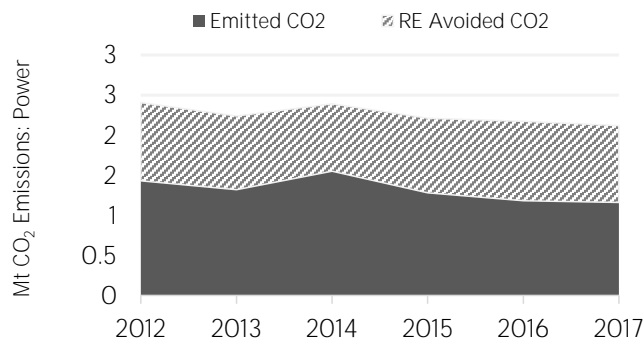
Energy-related CO₂ emissions by sector



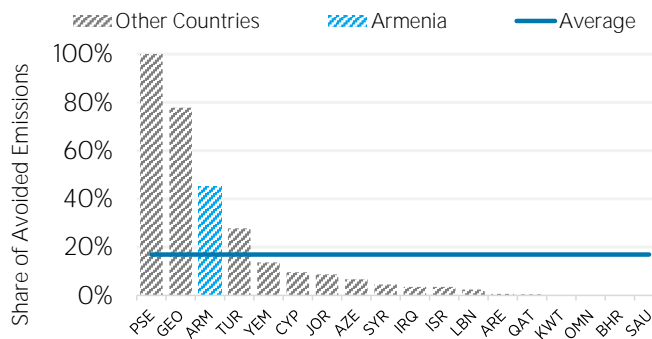
Elec. & heat generation CO₂ emissions in 2017



Avoided emissions from renewable power



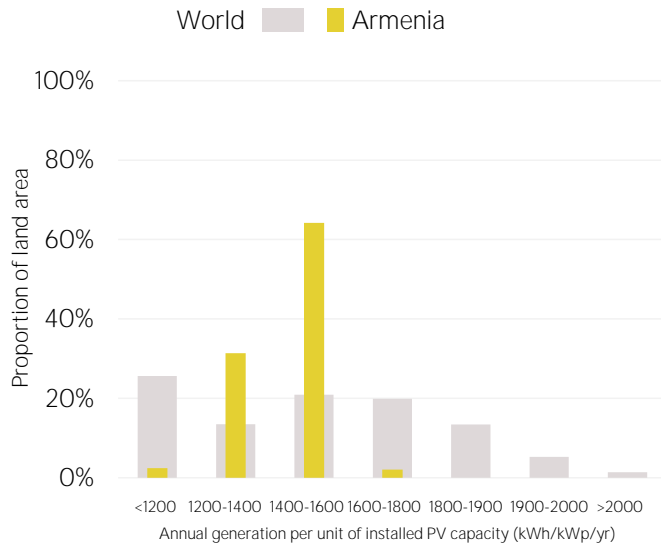
Reduction in power emissions due to RE in 2017



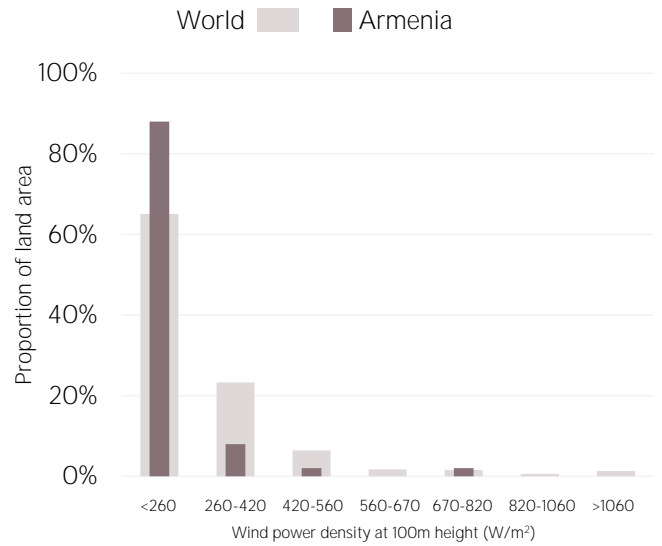
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

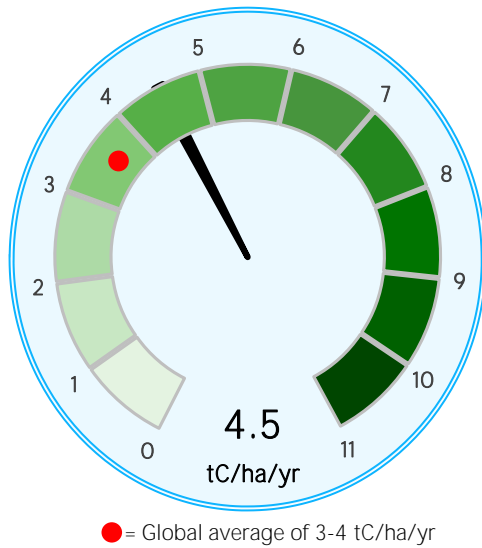
Distribution of solar potential



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/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 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.

Last updated on: 26th May, 2020



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