STATISTICAL PROFILE

Iran (Islamic Republic of)

Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	1.0	Access to electricity (% of population)	100.0
Energy efficiency (MJ per $1 of GDP)	7.0	Access to clean cooking (% of population)	>95

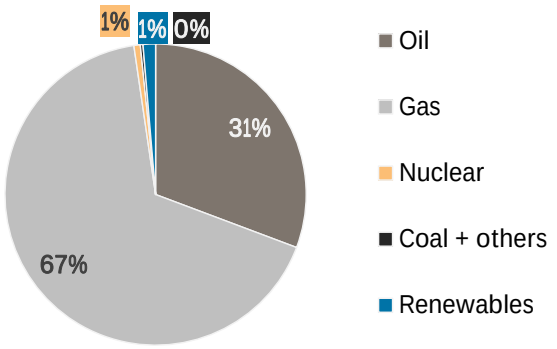
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	8 652 021	10 261 352
Renewable (TJ)	99 100	139 110
Total (TJ)	8 751 121	10 400 462
Renewable share (%)	1	1

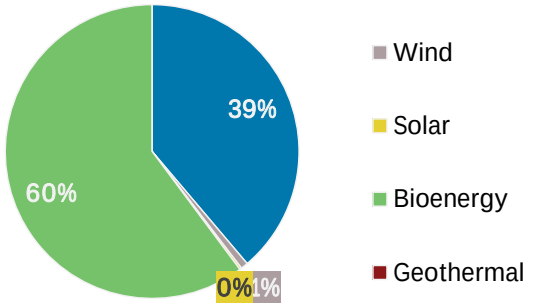
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+18.6	+4.1
Renewable (%)	+40.4	-2.3
Total (%)	+18.8	+4.0

Primary energy trade	2011	2016
Imports (TJ)	578 483	462 643
Exports (TJ)	6 226 497	6 362 009
Net trade (TJ)	5 648 014	5 899 366
Imports (% of supply)	7	4
Exports (% of production)	43	39
Energy self-sufficiency (%)	165	158
Net trade (USD million)	+ 95 715	+ 56 018
Net trade (% of GDP)	+16.4	+13.4

Total primary energy supply in 2016



Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

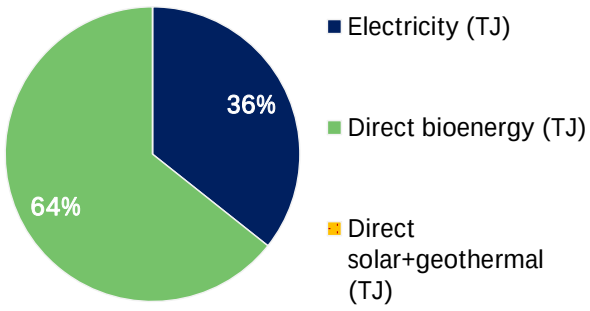
Consumption by source	2011	2016
Electricity (TJ)	36 018	46 476
Direct bioenergy (TJ)	54 374	83 775
Direct solar+geothermal (TJ)	0	0
Total (TJ)	**90 392**	**130 251**
Electricity share (%)	40	36

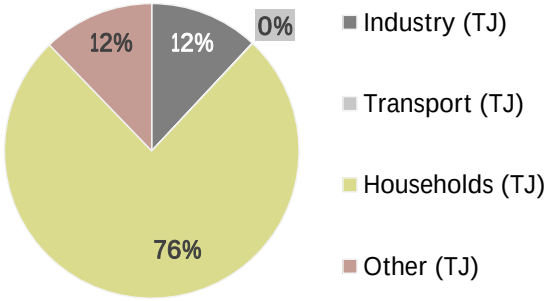
Consumption growth	2011-16	2015-16
Renewable electricity (%)	+29.0	-7.1
Other renewables (%)	+54.1	+1.3
Total (%)	**+44.1**	**-1.9**

Consumption by sector	2011	2016
Industry (TJ)	13 145	15 562
Transport (TJ)	67	84
Households (TJ)	65 167	98 688
Other (TJ)	12 013	15 917

Renewable share of TFEC	0.9	1.0

Renewable energy consumption in 2016





ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	**69 585**	**85**
Renewable	**12 679**	**15**
Hydro/marine	12 099	15
Solar	286	0
Wind	282	0
Bioenergy	12	0
Geothermal	0	0
Total	**82 264**	**100**

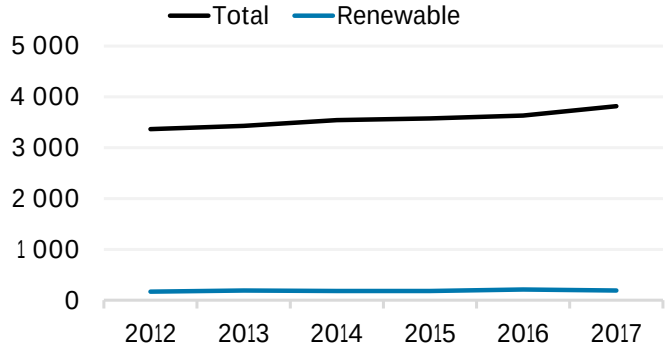
Capacity change (%)	2013-18	2017-18
Non-renewable	**+ 16**	**+ 3.2**
Renewable	**+ 22**	**+ 2.2**
Hydro/marine	+ 18	+ 1.2
Solar	+ 28 915	+ 55.2
Wind	+ 162	+ 8.9
Bioenergy	+ 74	0.0
Geothermal	0	0.0
Total	**+ 17**	**+ 3.1**

Net capacity change in 2018 (MW)

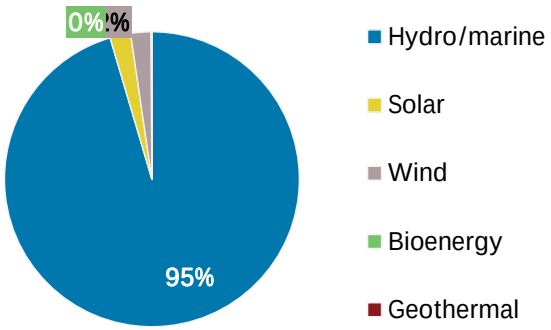
Non-renewable: + 2 172	Hydro and marine: + 146
Solar: + 102	Wind: + 23
Bioenergy: 0	Geothermal: 0

Generation in 2017	GWh	%
Non-renewable	**292 501**	**95**
Renewable	**15 468**	**5**
Hydro and marine	15 051	5
Solar	86	0
Wind	306	0
Bioenergy	24	0
Geothermal	0	0
Total	**307 968**	**100**

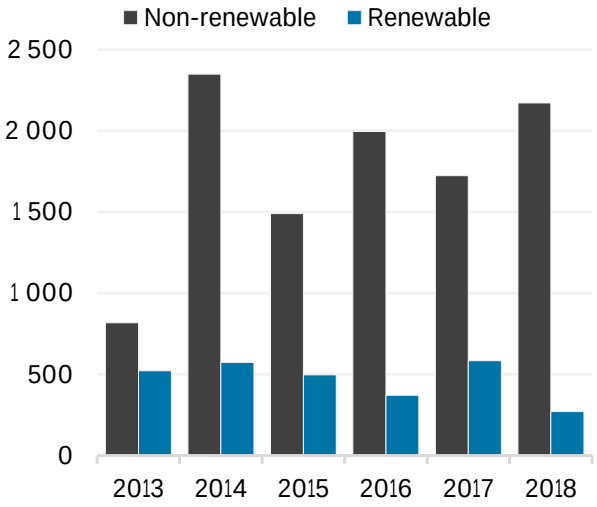
Per capita electricity generation (kWh)



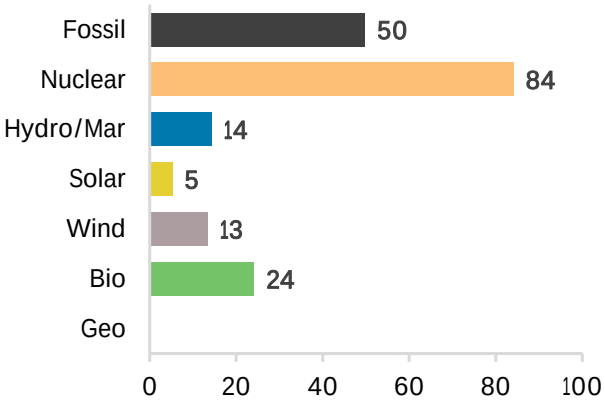
Renewable capacity in 2018



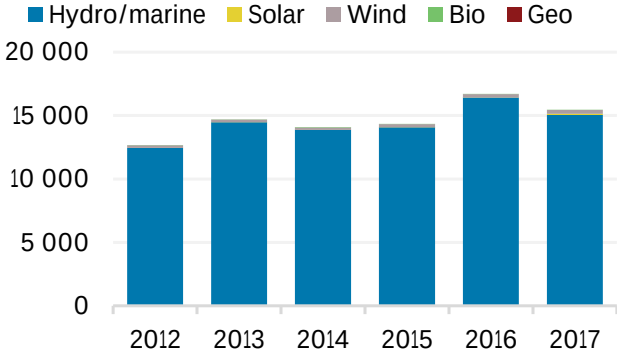
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2015	5	GW
Renewable electricity:	2021	5	%
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

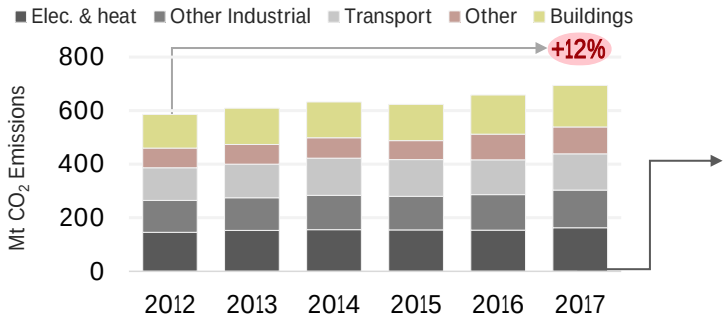
1	Renewable portfolio standards: Law on the Sixth Five-Year Economic, Cultural, and Social Development Plan for 1396-1400 (2016-2021)	2016
2	Supplying 20% of electricity consumed by ministries, institutes, governmental sectors and public non-governmental entities from renewable sources in Iran	2016
3	Payment of benefit of conserving fossil fuels	2015
4	Renewable Electricity Compliance	2015
5	Liquid Fuel Exchange Purchase	2013

References to sustainable energy in Nationally Determined Contribution (NDC)

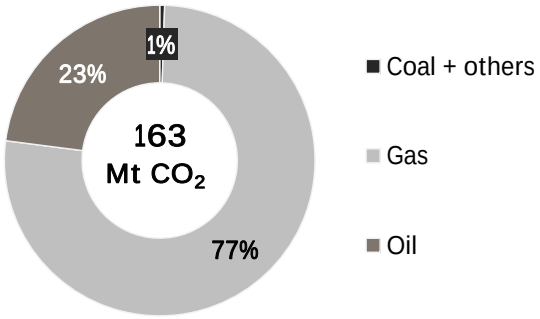
	Conditional	Unconditional	unit
- **Renewable energy**			
- electricity			
- transport			
- heating/cooling			
- Energy efficiency			

ENERGY AND EMISSIONS

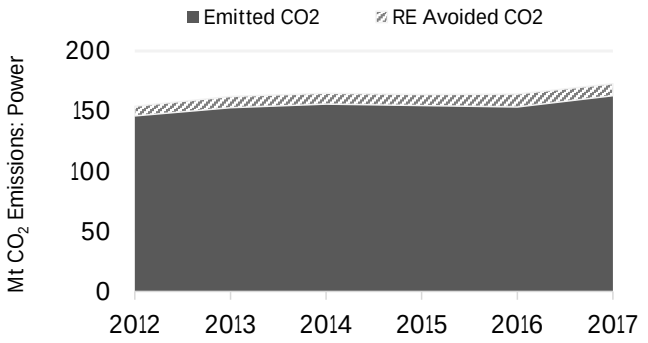
Energy-related CO_2 emissions by sector



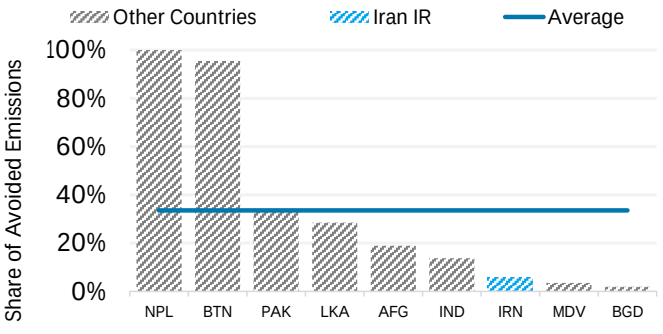
Elec. & heat generation CO_2 emissions in 2017



Avoided emissions from renewable power



Reduction in power emissions due to RE in 2017

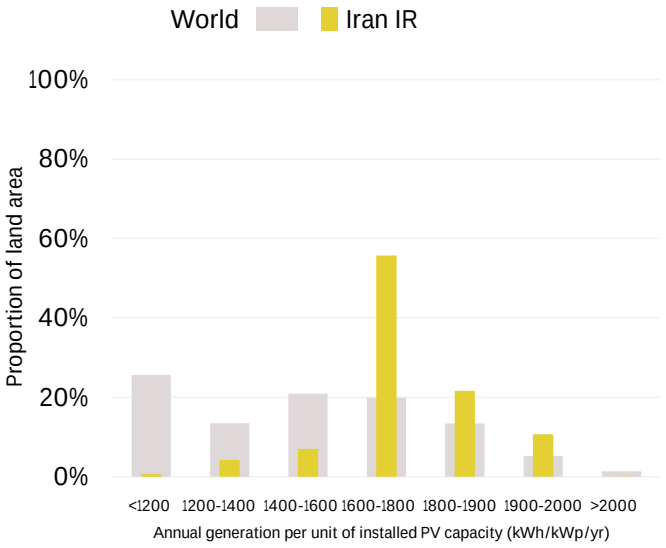


Avoided emissions based on fossil fuel mix used for power

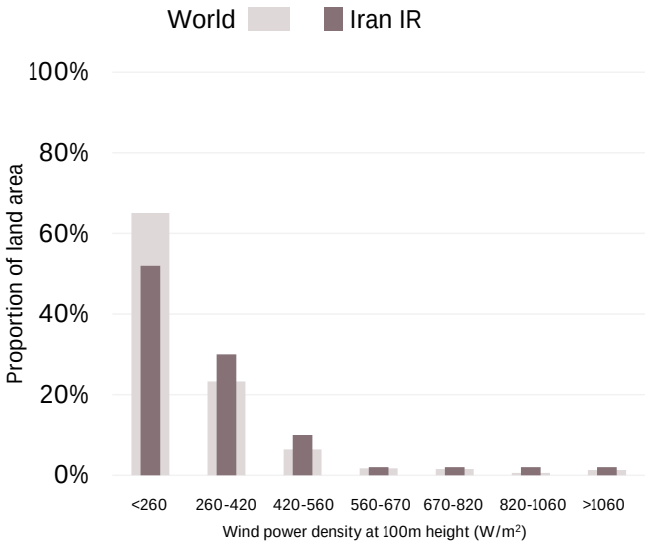
Reduction is RE Avoided divided by sum of avoided and emitted

RENEWABLE RESOURCE POTENTIAL

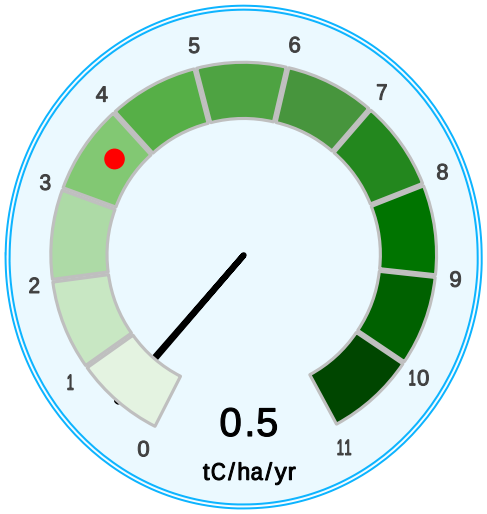
Distribution of solar potential



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 secrtor. 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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