

SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2017)

Renewable energy (% of TFEC)	41.4	Access to electricity (% of population)	70.8
Energy efficiency (MJ per \$1 of GDP)	4.4	Access to clean cooking (% of population)	43
Public flows renewables (2017 USD M)	1729.6	Per capita renewable capacity (W/person)	46.1

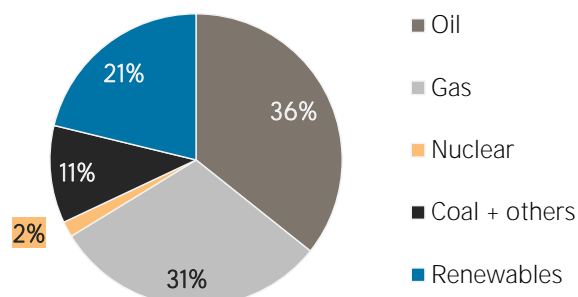
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2012	2017
Non-renewable (TJ)	2 498 128	3 382 048
Renewable (TJ)	666 670	910 197
Total (TJ)	3 164 799	4 292 245
Renewable share (%)	21	21

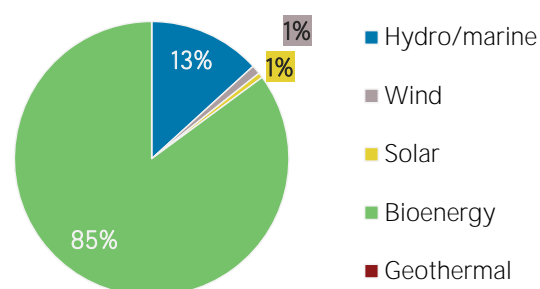
Growth in TPES	2012-17	2016-17
Non-renewable (%)	+35.4	+17.2
Renewable (%)	+36.5	+28.5
Total (%)	+35.6	+19.5

Primary energy trade	2012	2017
Imports (TJ)	859 225	2 147 819
Exports (TJ)	31 505	32 892
Net trade (TJ)	- 827 720	-2 114 927
Imports (% of supply)	27	50
Exports (% of production)	1	2
Energy self-sufficiency (%)	74	51
Net trade (USD million)	- 15 616	- 13 454
Net trade (% of GDP)	-7.0	-4.4

Total primary energy supply in 2017



Renewable energy supply in 2017



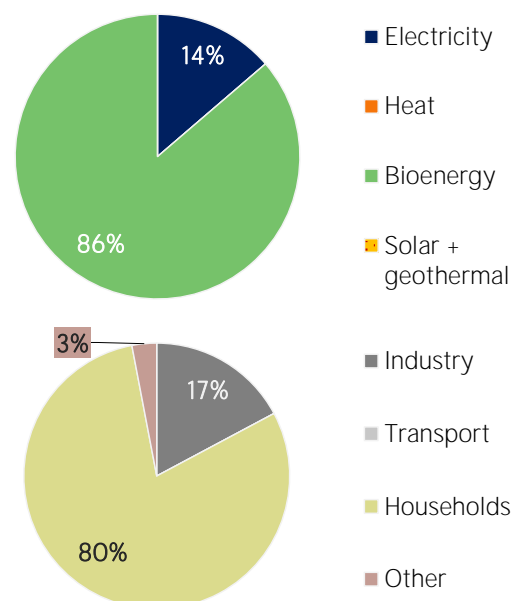
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2012	2017
Electricity (TJ)	95 976	118 917
Heat (TJ)	0	0
Bioenergy (TJ)	551 377	748 509
Solar + geothermal (TJ)	0	0
Total (TJ)	647 353	867 426
Electricity share (%)	15	14

Consumption growth	2012-17	2016-17
Renewable electricity (%)	+23.9	+14.8
Other renewables (%)	+35.8	+28.1
Total (%)	+34.0	+26.1

Consumption by sector	2012	2017
Industry (TJ)	146 809	149 256
Transport (TJ)	0	0
Households (TJ)	477 597	692 156
Other (TJ)	22 948	26 013
Renewable share of TFEC		41.4

Renewable energy consumption in 2017

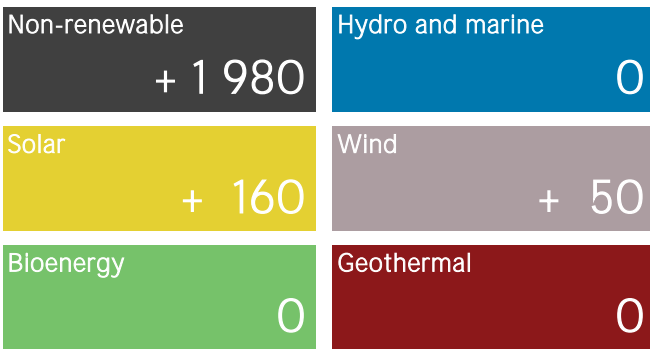


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2019	MW	%
Non-renewable	27 022	68
Renewable	12 896	32
Hydro/marine	9 900	25
Solar	1 329	3
Wind	1 236	3
Bioenergy	432	1
Geothermal	0	0
Total	39 918	100

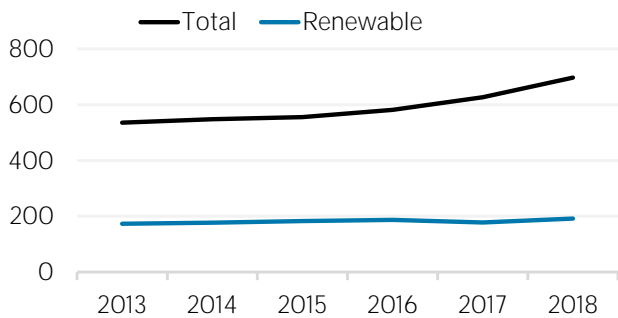
Capacity change (%)	2014-19	2018-19
Non-renewable	+ 58	+ 7.9
Renewable	+ 63	+ 1.7
Hydro/marine	+ 37	0.0
Solar	+ 704	+ 13.7
Wind	+ 501	+ 4.2
Bioenergy	+ 33	0.0
Geothermal	0	0.0
Total	+ 59	+ 5.8

Net capacity change in 2019 (MW)

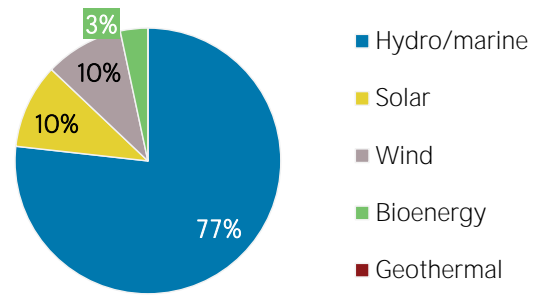


Generation in 2018	GWh	%
Non-renewable	107 240	73
Renewable	40 670	27
Hydro and marine	33 450	23
Solar	1 545	1
Wind	2 651	2
Bioenergy	3 024	2
Geothermal	0	0
Total	147 910	100

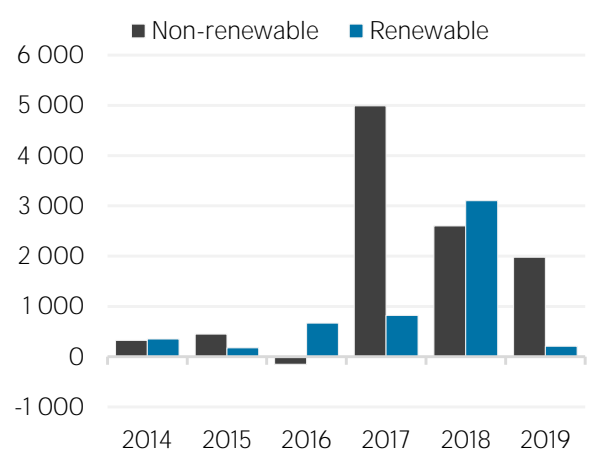
Per capita electricity generation (kWh)



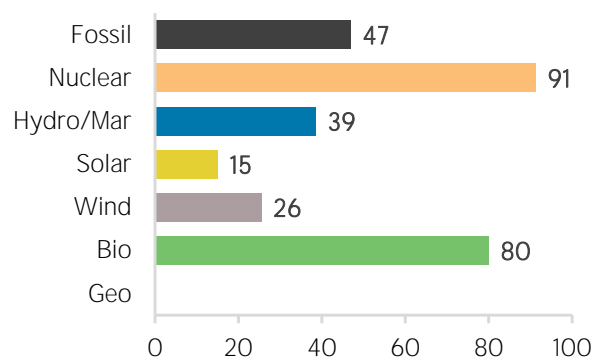
Renewable capacity in 2019



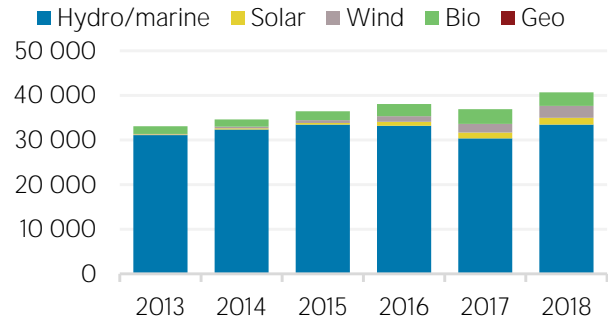
Net capacity change (MW)



Capacity utilisation in 2018 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2030	5	%
Renewable electricity:			
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):			

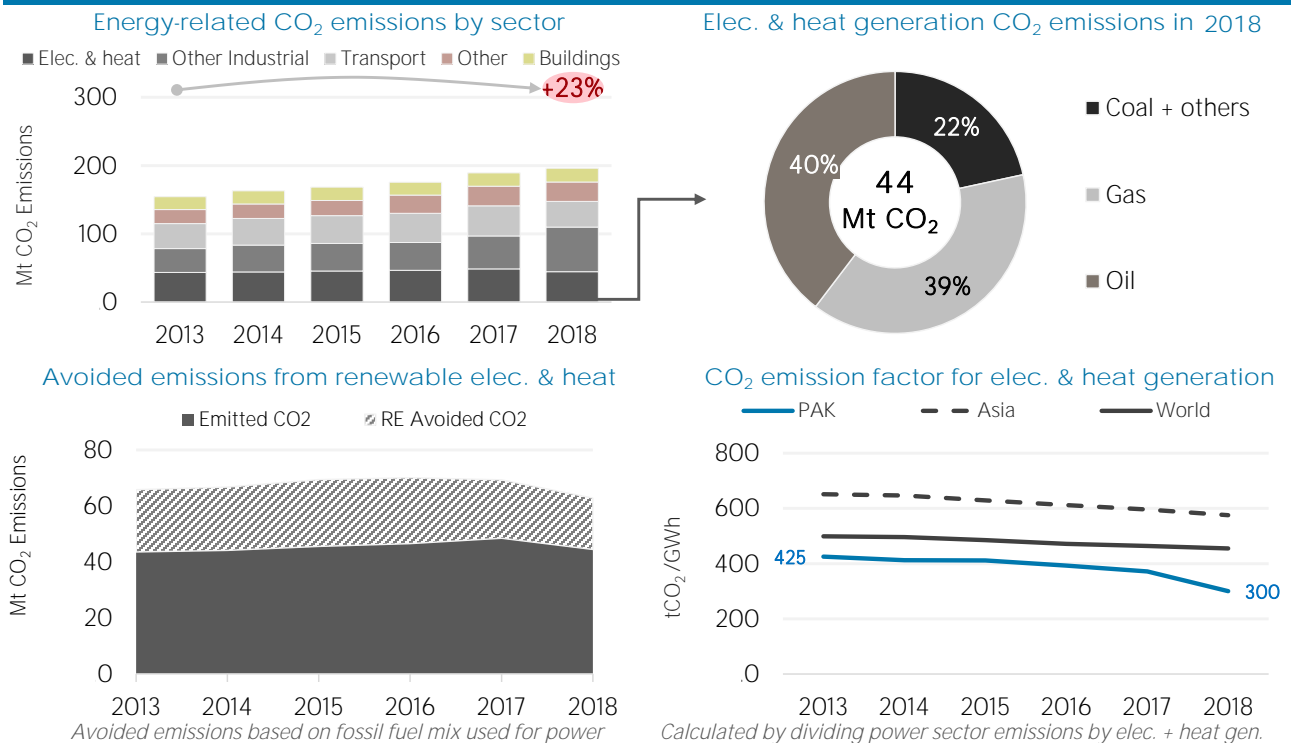
Latest policies, programmes and legislation

1	Pakistan MEPS and labeling for electric fans	2016
2	Pakistan net metering policy for solar PV and wind projects	2015
3	Minimum Energy Performance Standard (MEPS) For Window Type & Split Air Conditioners With Cooling Capacity under: 14000 W (12000 - 48000 BTU/hr)	2014
4	Pakistan feed-in tariff for solar power	2014
5	Upfront Generation Tariff for Solar PV Power Plants	2014

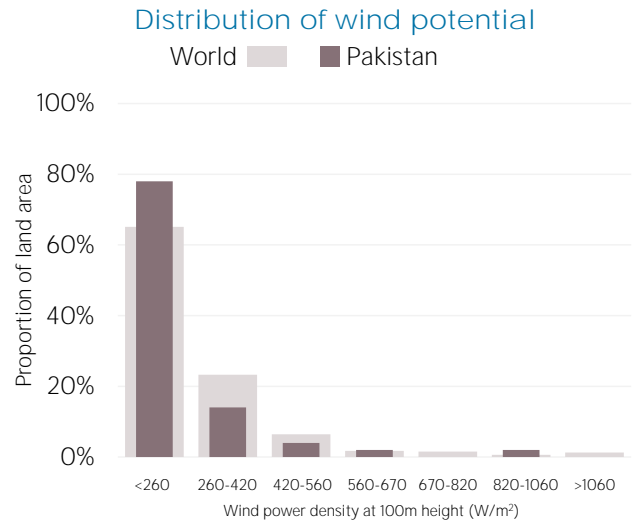
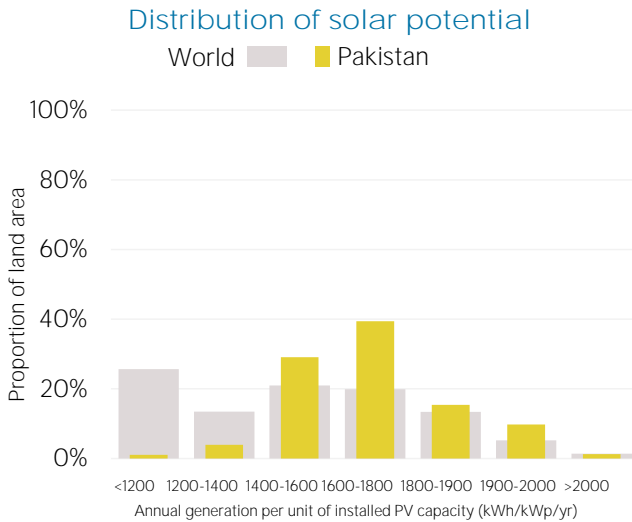
References to sustainable energy in Nationally Determined Contribution (NDC)

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

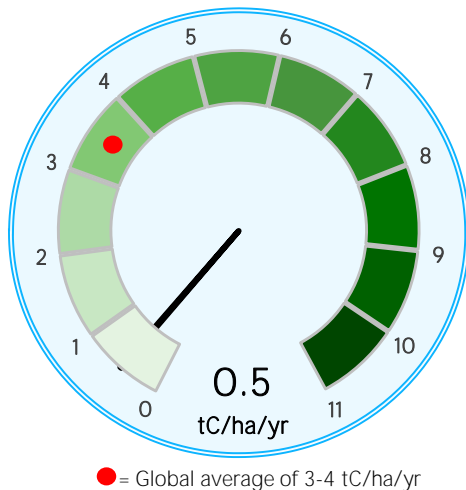
ENERGY AND EMISSIONS



RENEWABLE RESOURCE 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 Database (original sources: WHO; World Bank; IEA; IRENA; and UNSD); UN World Population Prospects; 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: Capacity per capita and public investments SDGs only apply to developing areas. Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. Energy trade includes all commodities in Chapter 27 of the Harmonised System (HS). Capacity utilisation is calculated as annual generation divided by year-end capacity x 8,760h/year. Avoided emissions from renewable power is 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.

These profiles have been produced to provide an overview of developments in renewable energy in different countries and areas. 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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