ENERGY PROFILE

Netherlands

SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2018)

|			
Renewable energy (% of TFEC)	7.4	Access to electricity (% of population)	100.0
Energy efficiency (MJ per $1 of GDP)	3.1	Access to clean cooking (% of population)	>95
Public flows renewables (2018 USD M)	n.a.	Per capita renewable capacity (W/person)	n.a.

TOTAL PRIMARY ENERGY SUPPLY (TPES)

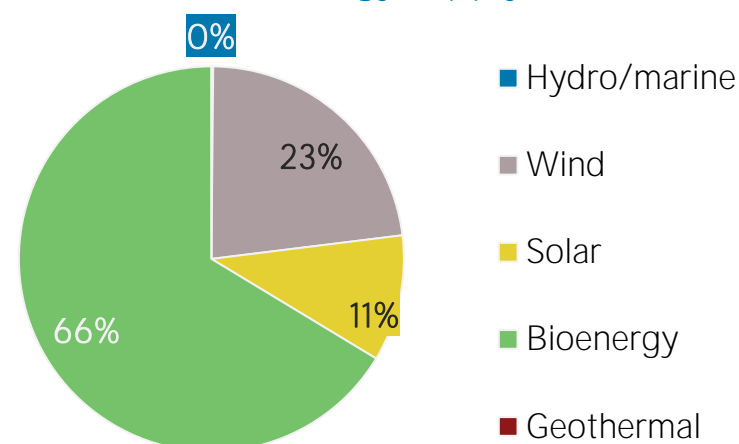| TPES	2013	2018
Non-renewable (TJ)	3 042 253	2 845 719
Renewable (TJ)	142 445	185 725
Total (TJ)	3 184 698	3 031 444
Renewable share (%)	4	6

Growth in TPES	2013-18	2017-18
Non-renewable (%)	-6.5	-2.4
Renewable (%)	+30.4	+11.7
Total (%)	-4.8	-1.6

| Primary energy trade	2013	2018
Imports (TJ)	8 259 301	8 654 150
Exports (TJ)	7 259 778	6 466 645
Net trade (TJ)	- 999 523	-2 187 505
Imports (% of supply)	259	285
Exports (% of production)	249	425
Energy self-sufficiency (%)	92	50
Net trade (USD million)	- 13 099	- 12 606
Net trade (% of GDP)	-1.5	-1.4

Total primary energy supply in 2018

- Oil
- Gas
- Nuclear
- Coal + others
- Renewables
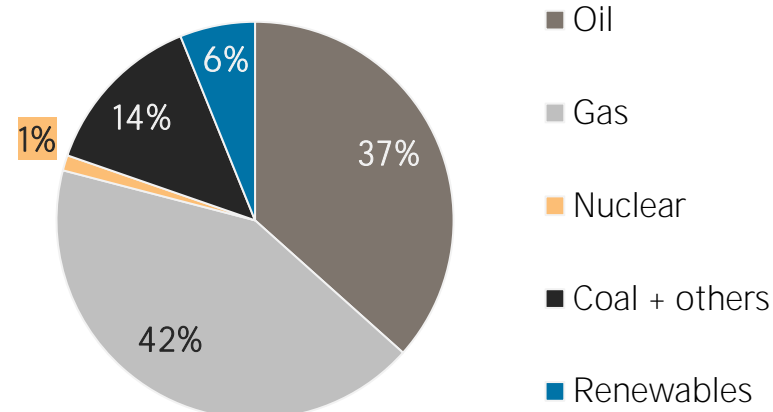
Renewable energy supply in 2018

- Hydro/marine
- Wind
- Solar
- Bioenergy
- Geothermal

RENEWABLE ENERGY CONSUMPTION

Consumption by source	2013	2018
Electricity (TJ)	43 048	76 983
Heat (TJ)	8 003	11 511
Bioenergy (TJ)	45 834	63 998
Solar + geothermal (TJ)	0	0
Total (TJ)	96 885	152 492
Electricity share (%)	44	50

Consumption growth	2013-18	2017-18
Renewable electricity (%)	+78.8	+25.6
Other renewables (%)	+40.3	+13.5
Total (%)	+57.4	+19.3

| Consumption by sector	2013	2018
Industry (TJ)	24 882	41 065
Transport (TJ)	13 172	22 489
Households (TJ)	28 486	33 755
Other (TJ)	30 345	55 183
Renewable share of TFEC	4.9	7.4

Renewable energy consumption in 2018

- Electricity
- Heat
- Bioenergy
- Solar + geothermal

- Industry
- Transport
- Households
- Other
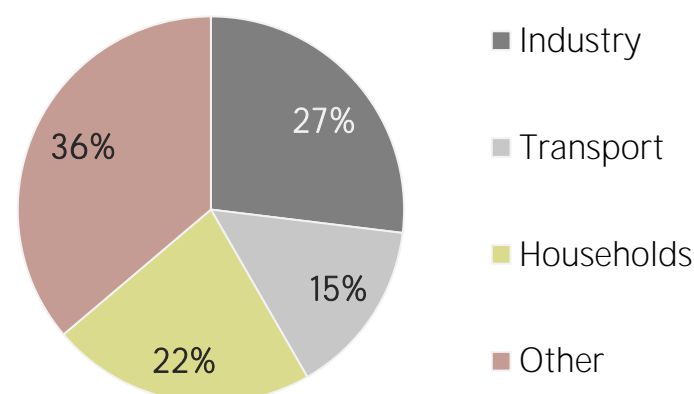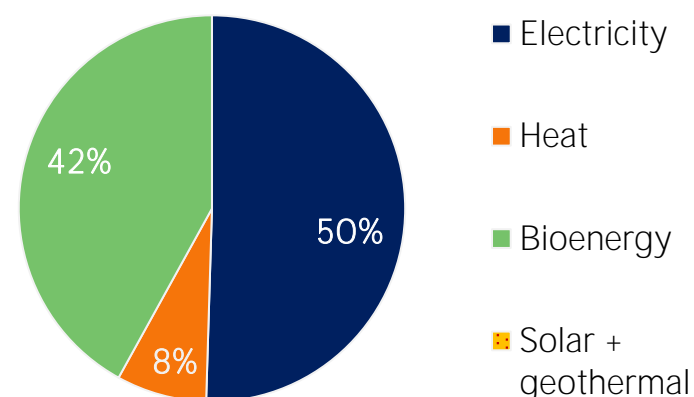
ELECTRICITY CAPACITY AND GENERATION

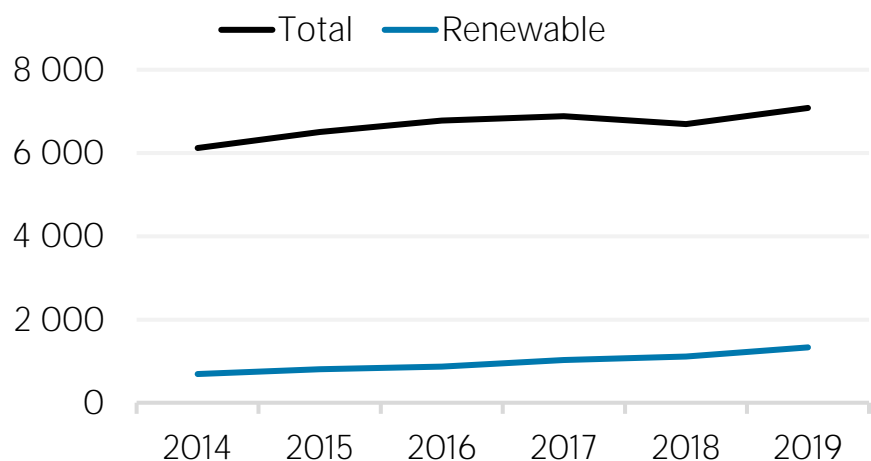| Capacity in 2020	MW	%
Non-renewable	25 155	59
Renewable	17 678	41
Hydro/marine	39	0
Solar	10 213	24
Wind	6 600	15
Bioenergy	826	2
Geothermal	0	0
Total	42 833	100

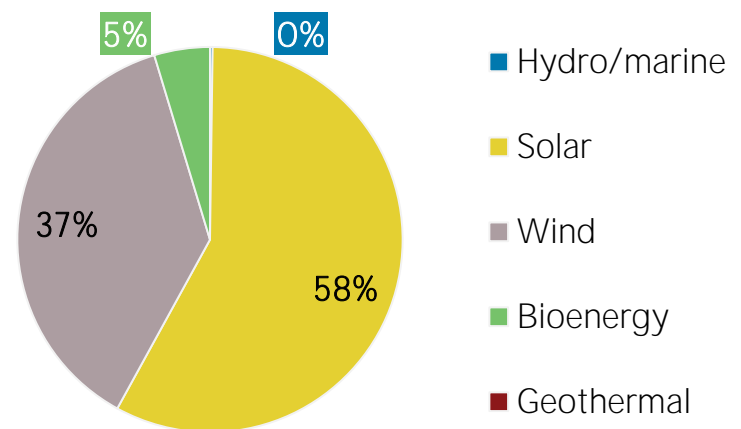| Capacity change (%)	2015-20	2019-20
Non-renewable	- 11	- 0.2
Renewable	+ 208	+ 41.2
Hydro/marine	0	0.0
Solar	+ 569	+ 42.3
Wind	+ 95	+ 47.2
Bioenergy	+ 6	+ 0.7
Geothermal	0	0.0
Total	+ 26	+ 13.6

Net capacity change in 2020 (MW)

Non-renewable	Hydro and marine
- 43	0

Solar	Wind
+ 3 036	+ 2 116

Bioenergy	Geothermal
+ 6	0
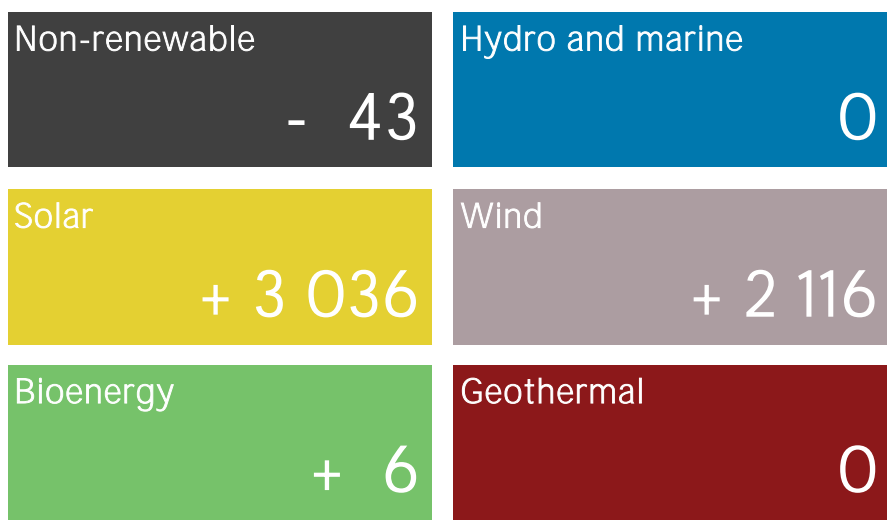
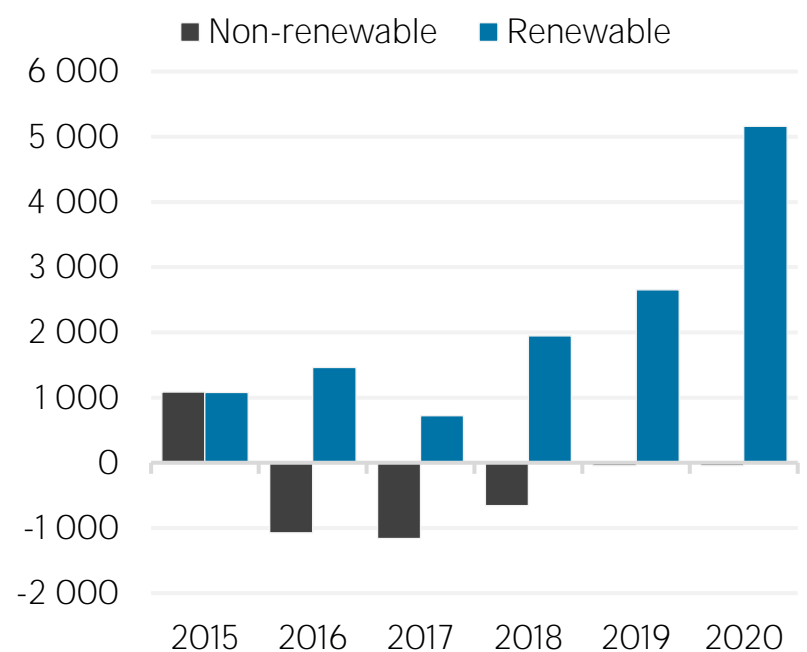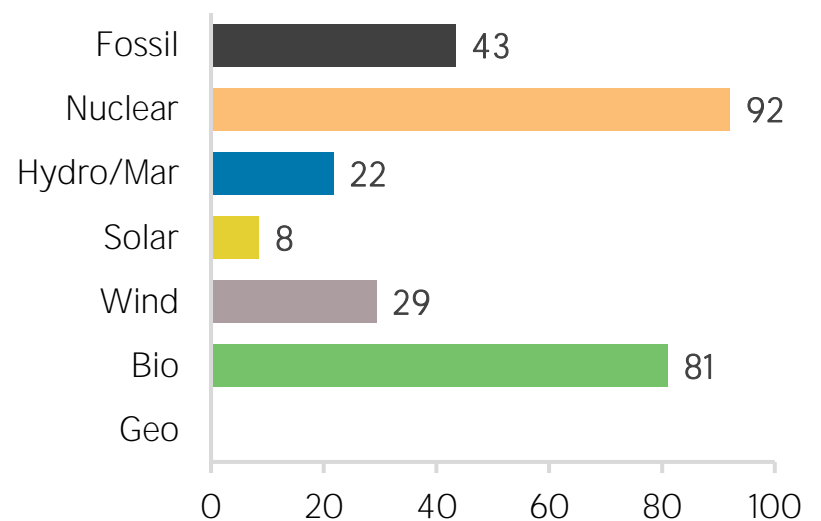| Generation in 2019	GWh	%
Non-renewable	98 330	81
Renewable	22 732	19
Hydro and marine	74	0
Solar	5 335	4
Wind	11 508	10
Bioenergy	5 814	5
Geothermal	0	0
Total	121 062	100

Renewable capacity in 2020

- Hydro/marine
- Solar
- Wind
- Bioenergy
- Geothermal

Net capacity change (MW)

Capacity utilisation in 2019 (%)

Per capita electricity generation (kWh)

Renewable generation (GWh)
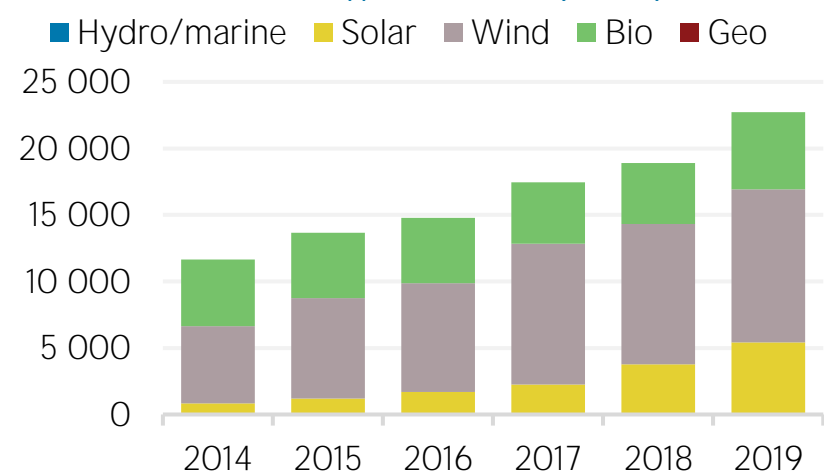
Most immediate clean energy targets & NDCs

|	year	target
Renewable energy:	2020	14.5 %
Renewable electricity:	2020	37 %
Renewable capacity:		
Renewable transport:	2020	10 %
Liquid Biofuel blending mandate:		
Other transport targets:		
Renewable heating/cooling:	2020	8.7 %
Renewable Hydropower		
Off-grid renewable technologies:		
Energy efficiency (Energy):		
Energy efficiency (Electricity):		

Latest policies, programmes and legislation

1	National CO$_2$ pricing system for industry	2021
2	SDE++ Funding for Porthos to develop its CCS project	2021
3	Minimum CO2 price electricity production	2020
4	Mission oriented R&D and innovation	2020
5	National Agenda on infrastructure for alternative fuels	2020

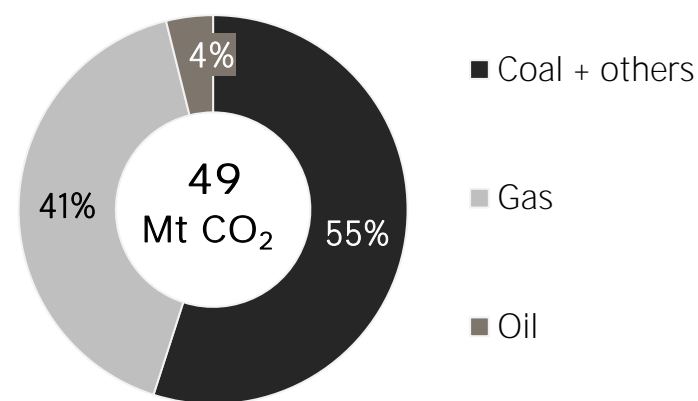## References to sustainable energy in Nationally Determined Contribution (NDC)

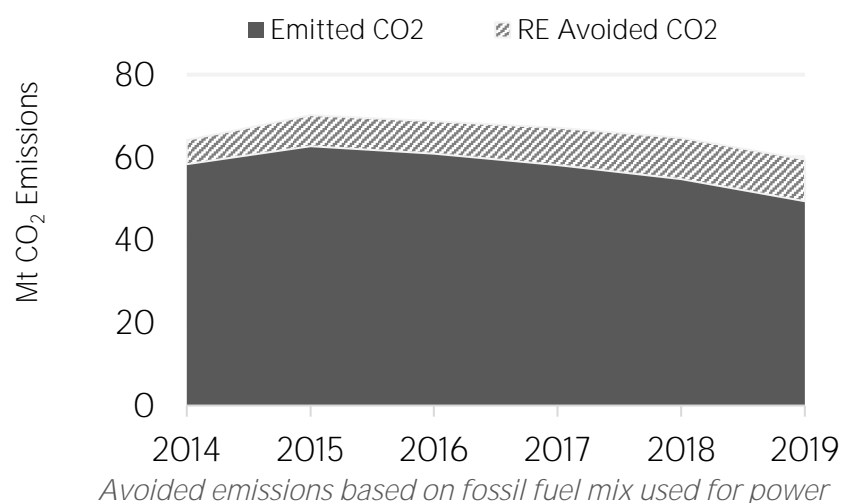|	Conditional	Unconditional	unit
- Renewable energy			
- electricity			
- transport			
- heating/cooling			
- Energy efficiency			

Energy-related CO$_2$ emissions by sector

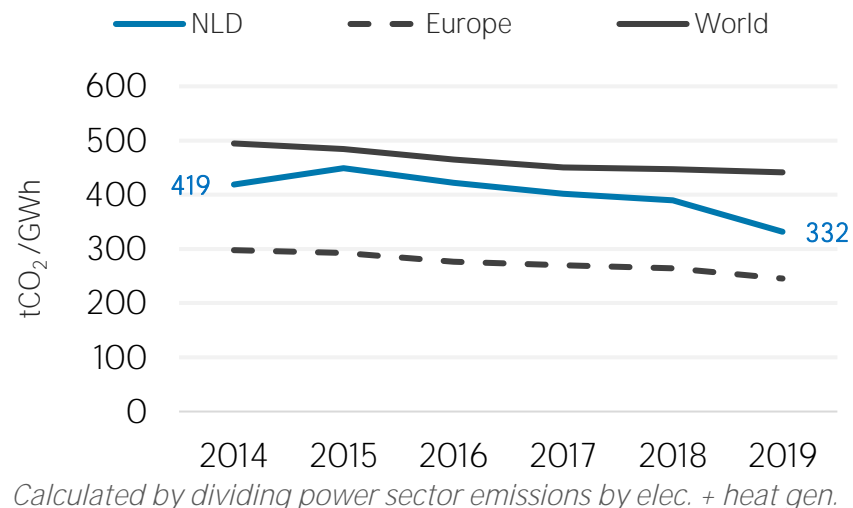■ Elec. & heat ■ Other Industrial ■ Transport ■ Other ■ Buildings

+0%
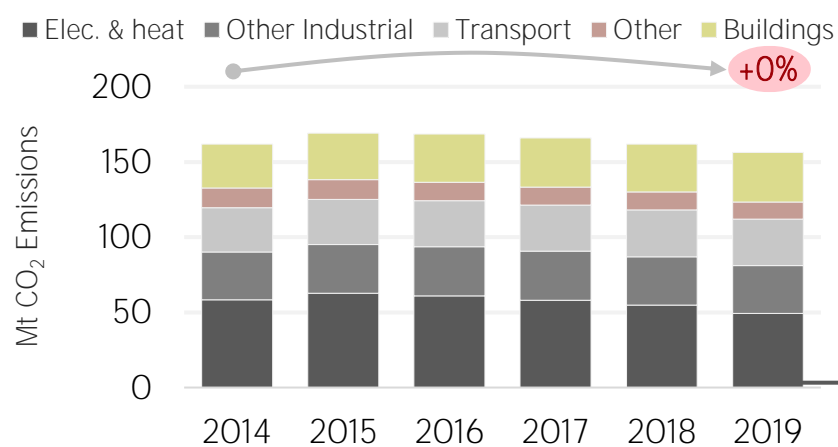
Elec. & heat generation CO$_2$ emissions in 2019

49 Mt CO$_2$

■ Coal + others 4%
■ Gas 41%
■ Oil 55%

Avoided emissions from renewable elec. & heat

■ Emitted CO2 ▨ RE Avoided CO2

Avoided emissions based on fossil fuel mix used for power

CO$_2$ emission factor for elec. & heat generation

— NLD --- Europe — World

419   332

Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential

World ▢ Netherlands ▮

Proportion of land area

100%
80%
60%
40%
20%
0%

<1200 1200-1400 1400-1600 1600-1800 1800-1900 1900-2000 >2000

Annual generation per unit of installed PV capacity (kWh/kWp/yr)

Distribution of wind potential

World ▢ Netherlands ▮

Proportion of land area

100%
80%
60%
40%
20%
0%

<260 260-420 420-560 560-670 670-820 820-1060 >1060

Wind power density at 100m height (W/m^2)

Biomass potential: net primary production

5.5
tC/ha/yr

● = Global average of 3-4 tC/ha/yr
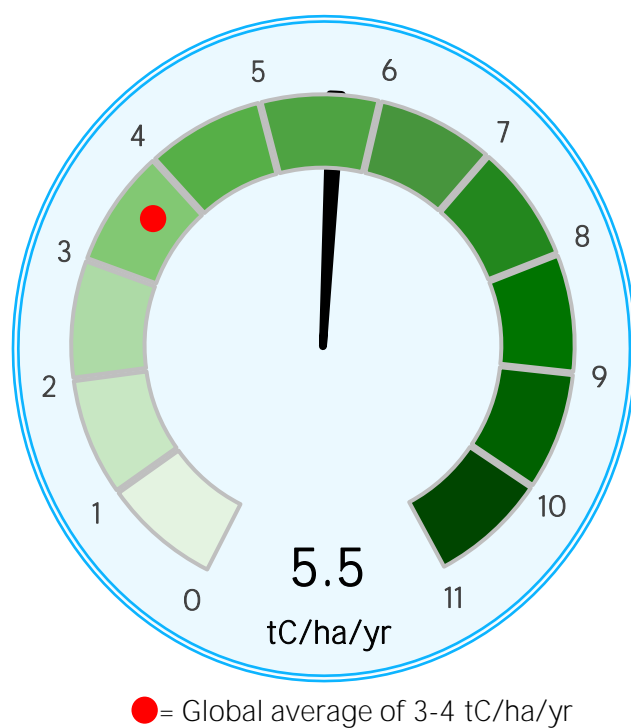
Indicators of renewable resource potential

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.

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