

RENEWABLES 2018

GLOBAL STATUS REPORT



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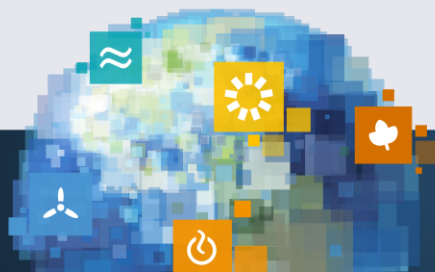
Another Extraordinary Year for Renewable Energy

- Total global capacity: up almost **9%** compared to 2016, **2,195 GW** at year's end (**1,081 GW** not incl. hydro)
- Share in newly installed renewable power capacity:
 - **Solar PV: 55%**
 - **Wind: 29%**
 - Hydropower: 11%
 - Bio-power: 4.6%

RENEWABLE ENERGY INDICATORS 2017

		2016	2017
INVESTMENT			
New investment (annual) in renewable power and fuels ¹	billion USD	274	279.8
POWER			
Renewable power capacity (including hydro)	GW	2,017	2,195
Renewable power capacity (not including hydro)	GW	922	1,081
⚡ Hydropower capacity ²	GW	1,095	1,114
🌱 Bio-power capacity	GW	114	122
🌱 Bio-power generation (annual)	TWh	501	555
🔥 Geothermal power capacity	GW	12.1	12.8
☀️ Solar PV capacity ³	GW	303	402
☀️ Concentrating solar thermal power (CSP) capacity	GW	4.8	4.9
🌬️ Wind power capacity	GW	487	539
🌊 Ocean energy capacity	GW	0.5	0.5
HEAT			
☀️ Solar hot water capacity ⁴	GW _{th}	456	472
TRANSPORT			
🚗 Ethanol production (annual)	billion litres	103	106
🚗 FAME biodiesel production (annual)	billion litres	31	31
🚗 HVO production (annual)	billion litres	5.9	6.5

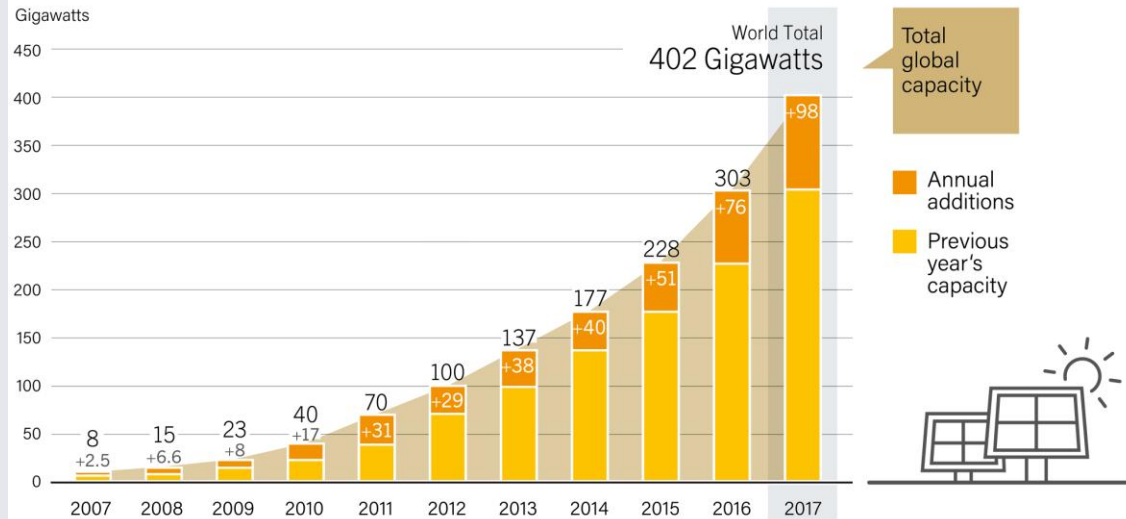
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Solar PV Global Capacity and Additions

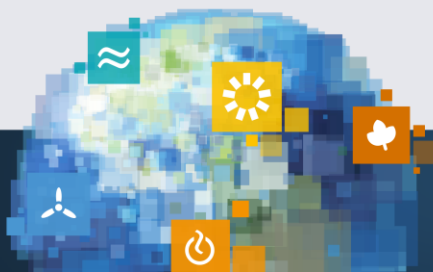
- **98 GW** of solar PV capacity added in 2017
- Global total increased **33%** to **402 GW** (equivalent of 40,000 PV panels every hour)
- **More solar PV was installed than the net capacity additions of fossil fuels and nuclear power combined**

Solar PV Global Capacity and Annual Additions, 2007-2017



Source: IEA PVPS

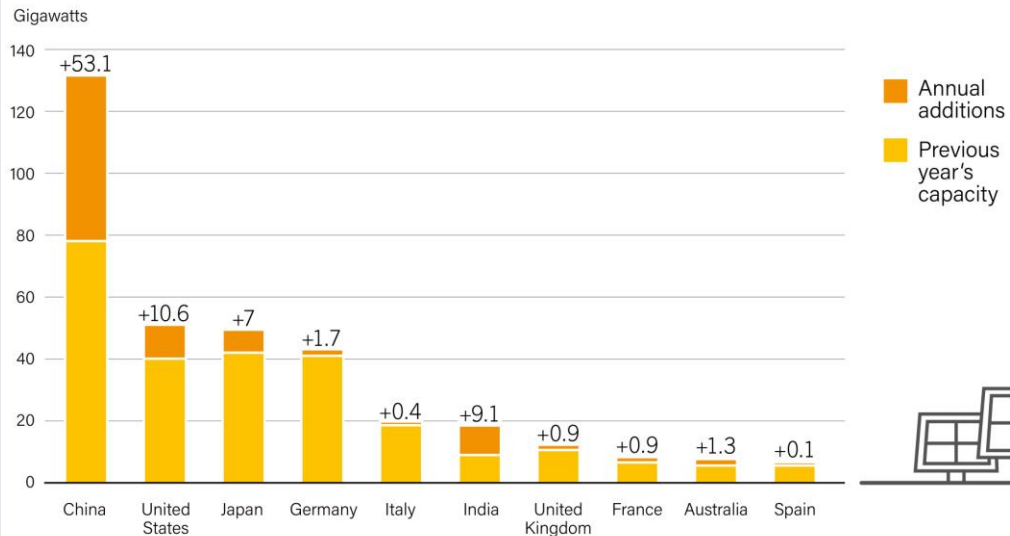
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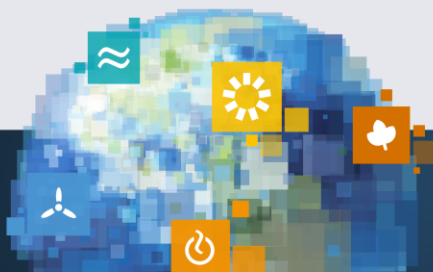
Solar PV Capacity and Additions

- **China** added **53.1 GW** in 2017, more than was added worldwide in 2015, increasing its total solar PV capacity to **131.1 GW**
- China reached its 2020 target for solar installations in 2017
- The **United States** remained a distant second, adding 10.6 GW for a total of 51 GW

Solar PV Capacity and Additions, Top 10 Countries, 2017



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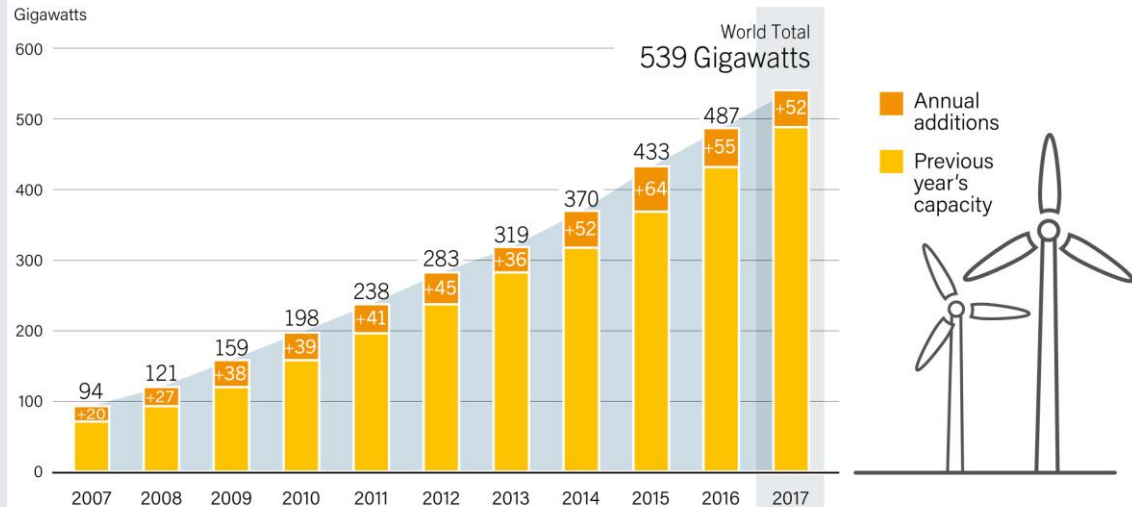


Wind Power Capacity and Additions

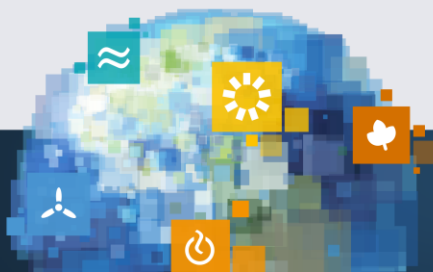
→ **52 GW** of wind power capacity added in 2017

→ The global total increased by **11%** to **539 GW**

Wind Power Global Capacity and Annual Additions, 2007-2017



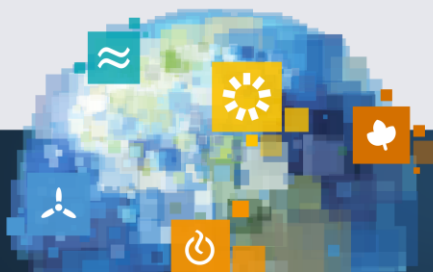
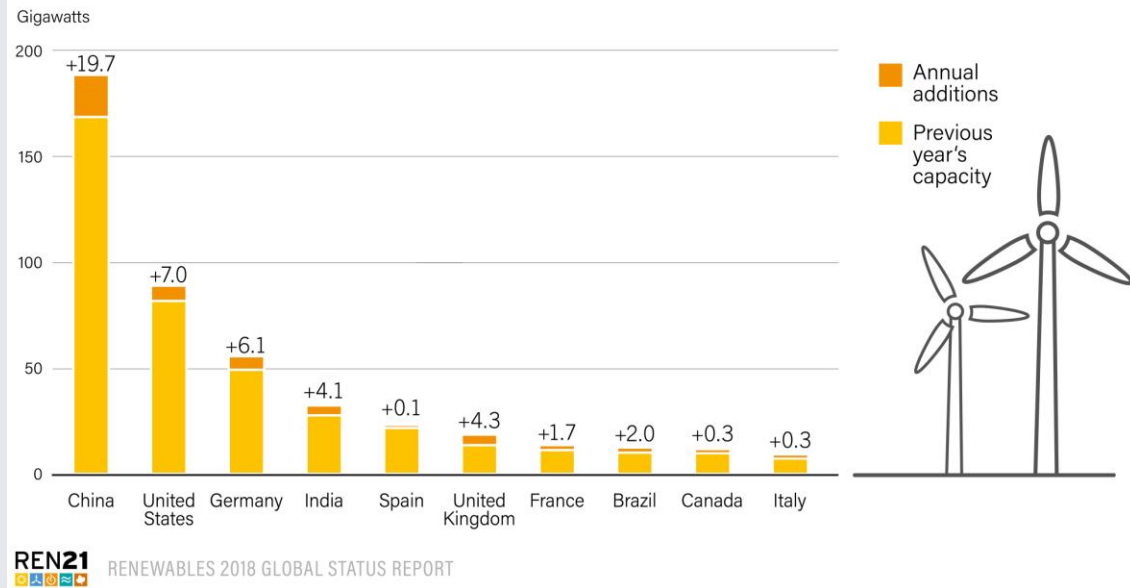
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Wind Power Capacity and Additions

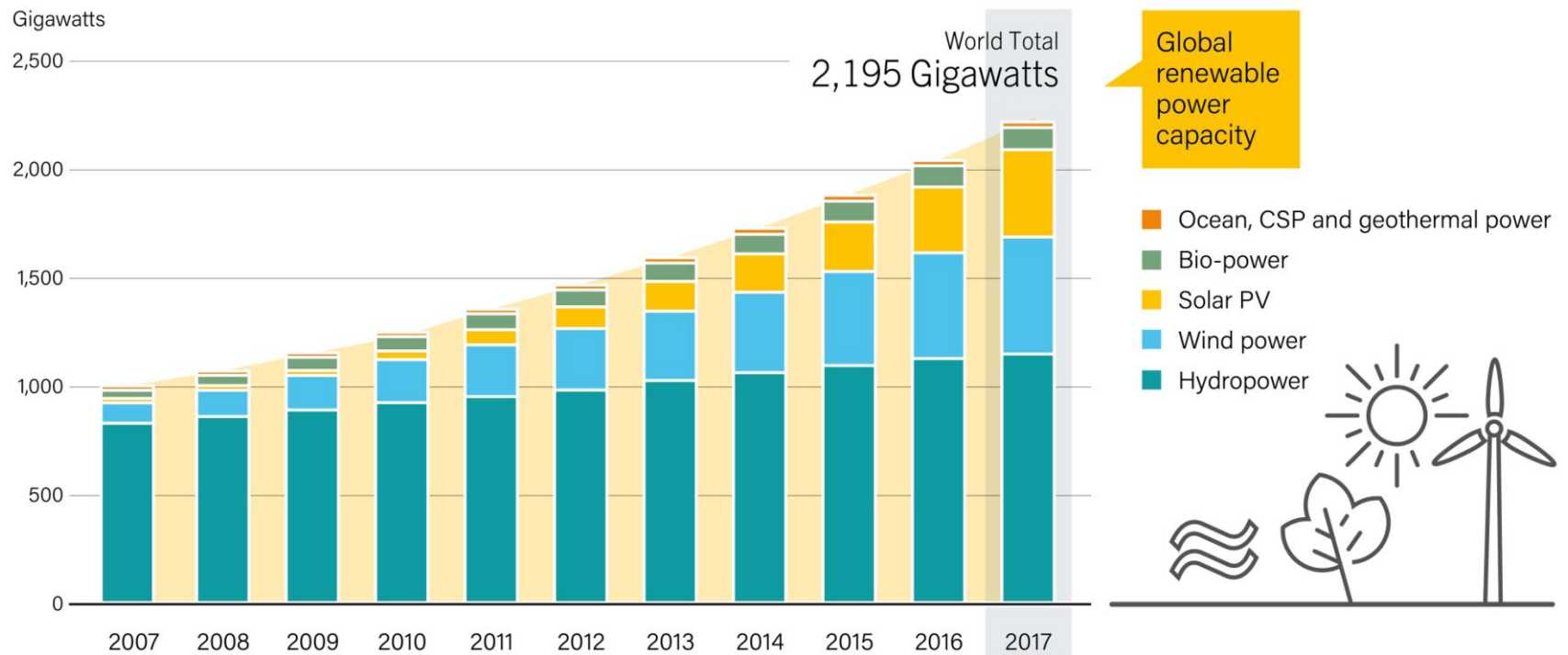
- **China:** lead position for wind power as well, adding nearly **19.7 GW** and reaching a total of **188.4 GW**
- It was followed distantly by the United States, Germany, the United Kingdom and India

Wind Power Capacity and Additions, Top 10 Countries, 2017



Global Renewable Power Capacity

Global Renewable Power Capacity, 2007-2017



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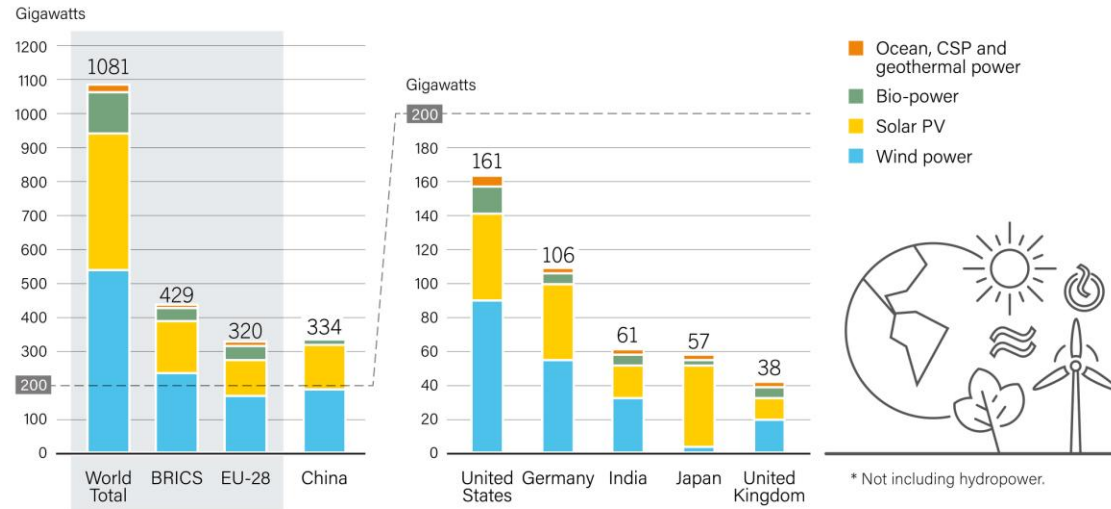
REN21 Renewable Energy Policy Network for the 21st Century

Renewable Power Capacities in the World

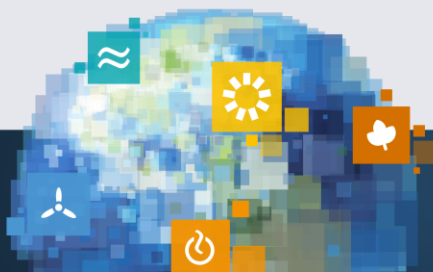
→ **China:** nearly **30%** of the world's renewable power capacity (approx. 647 GW)



Renewable Power Capacities in World, EU-28 and Top 6 Countries, 2017



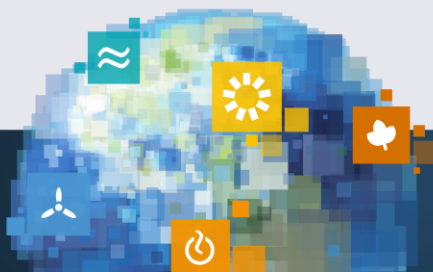
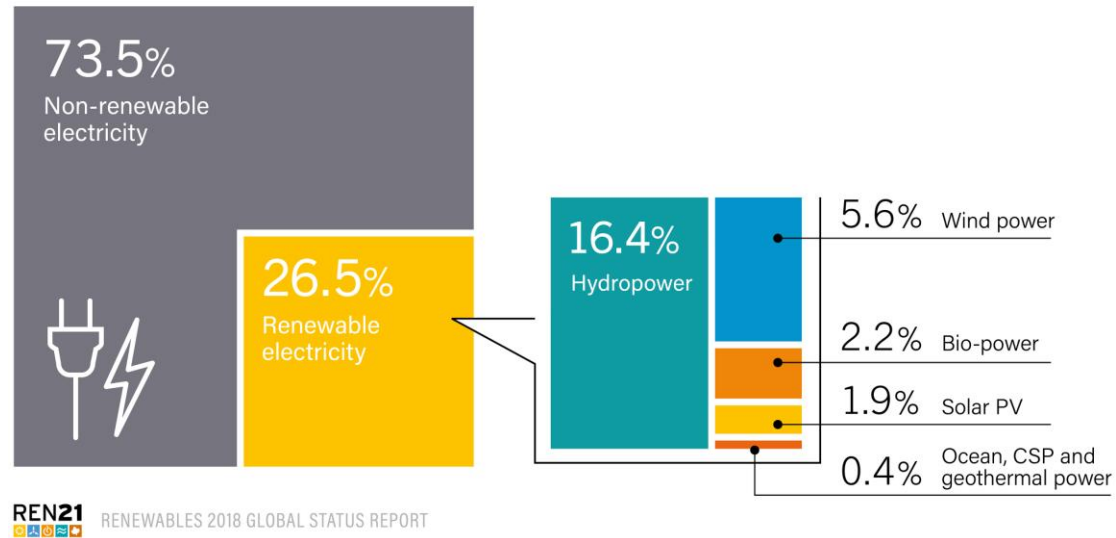
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Power Sector

- In 2017, renewables accounted for: **70%** of net additions to global power generation capacity
- RE supplied an estimated **26.5% of global electricity**
- **Progress in the power sector shows that the transition to renewable energy is possible!**

Estimated Renewable Energy Share of Global Electricity Production, End-2017

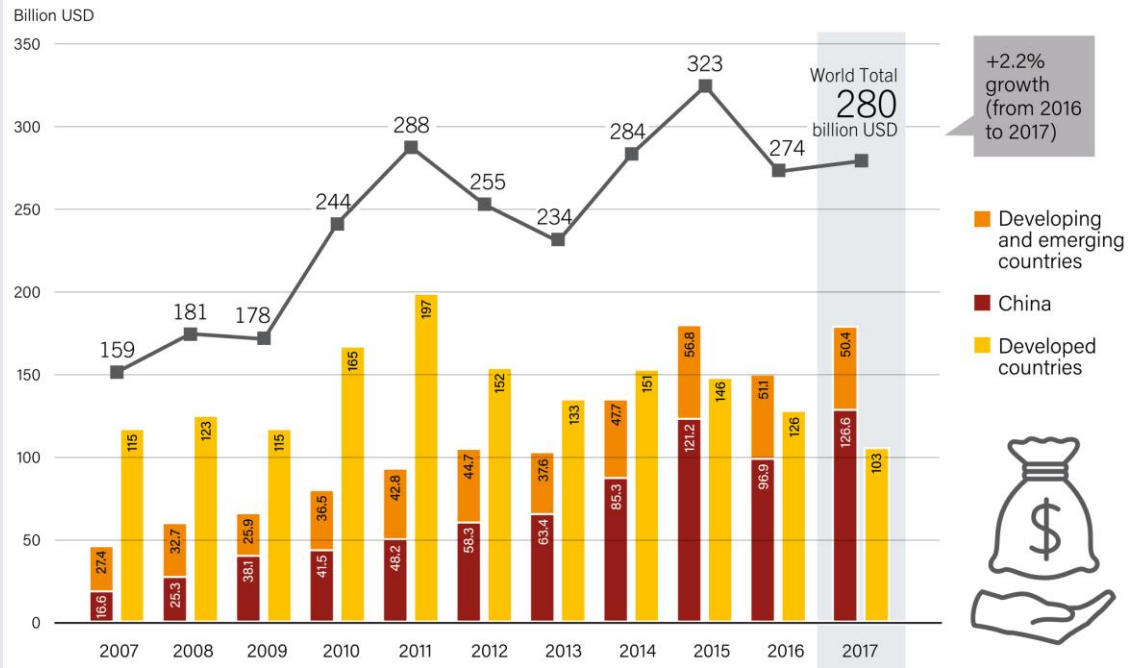


Global Investment in Renewable Energy

→ Global new investment in renewable power and fuels in 2017: **USD 279.8 billion (+2.2%)** (USD 319.8 billion incl. large hydropower)

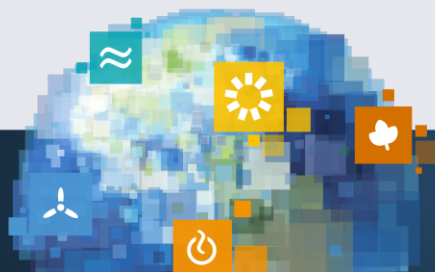
→ Investment in new renewable power capacity roughly three times that in new fossil fuel capacity

Global New Investment in Renewable Power and Fuels in Developed, Emerging and Developing Countries, 2007-2017



Source: BNEF

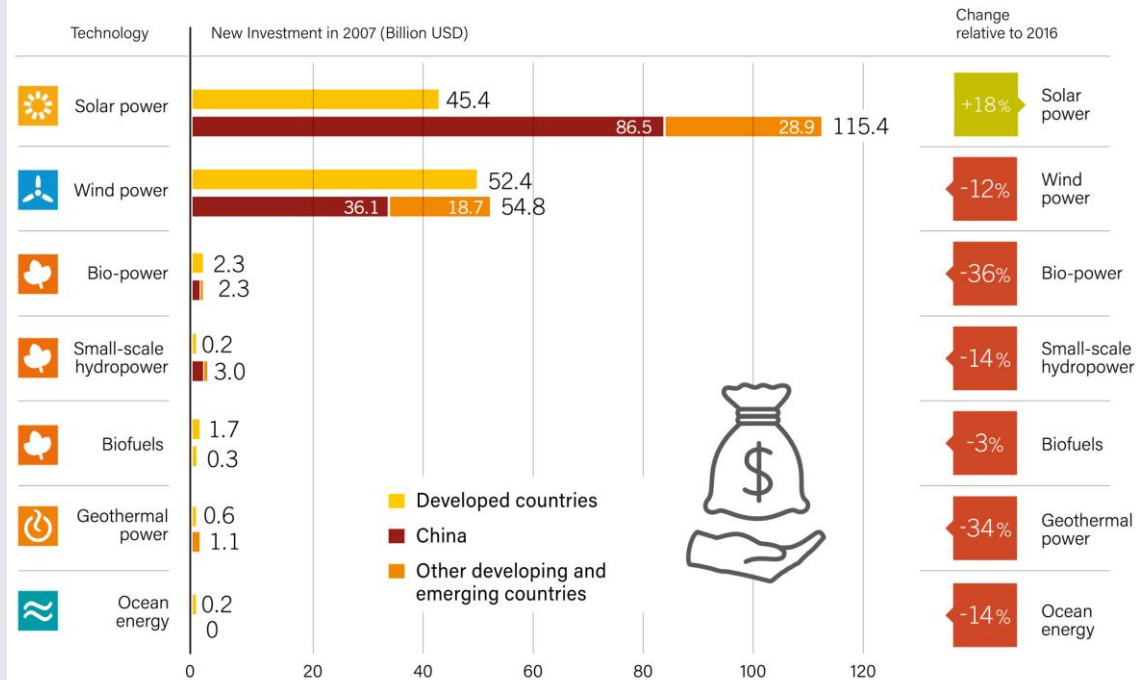
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Global Investment in Renewable Energy by Technology

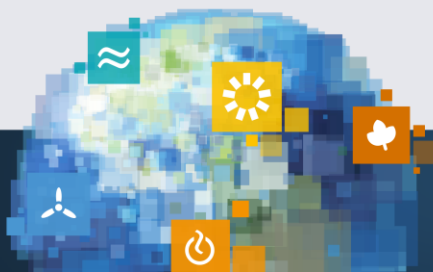
- Nearly all of the investment in 2017 was in **solar PV (57%)** and **wind power (38%)**
- **Solar PV**: only technology to witness an increase in new investment (+18% compared to 2016)
- Investment in all other technologies was down in 2017 relative to 2016

Global New Investment in Renewable Energy by Technology in Developed, Emerging and Developing Countries, 2017



Source: BNEF






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Renewable Energy “Champions”

TOP 5 COUNTRIES 2017

Annual Investment / Net Capacity Additions / Production in 2017

	1	2	3	4	5
Investment in renewable power and fuels (not including hydro over 50 MW)	China	United States	Japan	India	Germany
Investment in renewable power and fuels per unit GDP ¹	Marshall Islands	Rwanda	Solomon Islands	Guinea-Bissau	Serbia
 Geothermal power capacity	Turkey	Indonesia	Chile	Iceland	Honduras
 Hydropower capacity	China	Brazil	India	Angola	Turkey
 Solar PV capacity	China	United States	India	Japan	Turkey
 Concentrating solar thermal power (CSP) capacity ²	South Africa	-	-	-	-
 Wind power capacity	China	United States	Germany	United Kingdom	India
 Solar water heating capacity	China	Turkey	India	Brazil	United States
 Biodiesel production	United States	Brazil	Germany	Argentina	Indonesia
 Ethanol production	United States	Brazil	China	Canada	Thailand

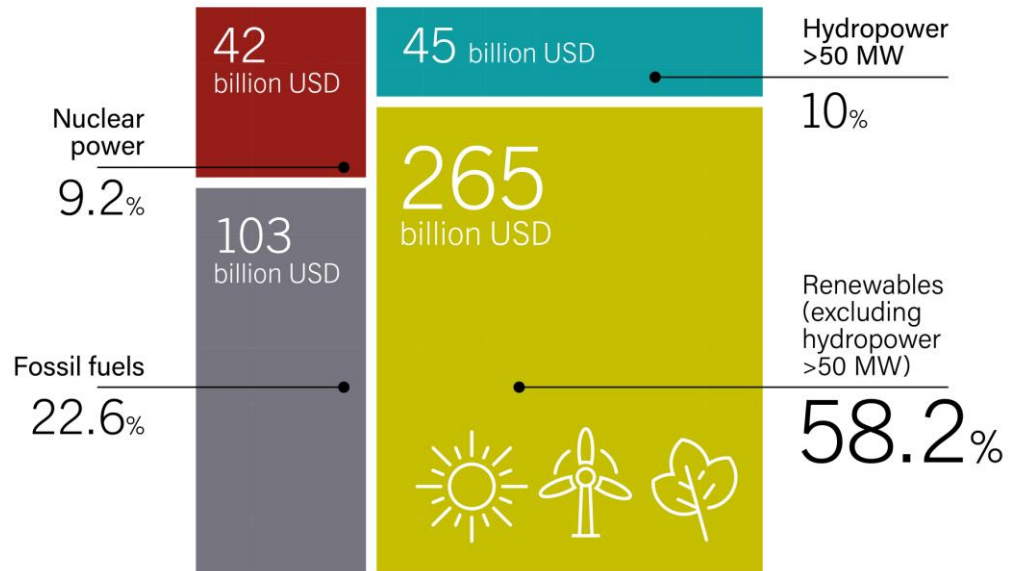
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Global Investment in New Power Capacity

- **Renewable energy: 68%** of the total amount committed to new power-generating capacity in 2017
- **USD 310 billion (est.)** committed to constructing new renewable power plants, compared to:
 - Fossil fuel-fired generating capacity: USD 103 billion
 - Nuclear power capacity: USD 42 billion

Global Investment in New Power Capacity, by Type (Renewables, Fossil Fuels and Nuclear Power), 2017



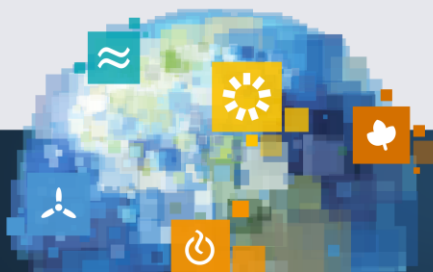
Source: BNEF

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Investment in new renewable power capacity in 2017 was more than

twice

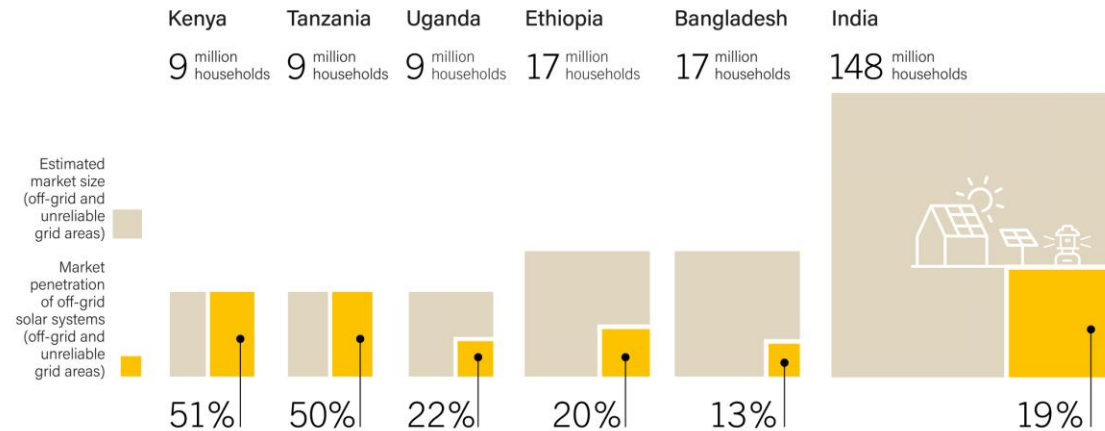
that in fossil fuels and nuclear combined.



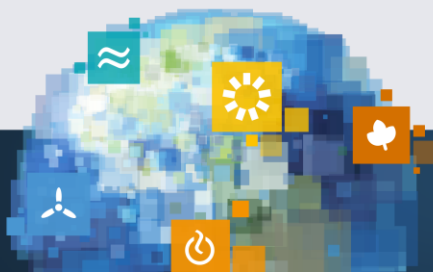
Off-grid Solar Systems Markets

- **13% of the population in Bangladesh gained access to electricity through off-grid solar systems**
- **51% of the off-grid population of Kenya is served by DREA systems**
- In 2017, an increasing number of national governments demonstrated their interest in DREA systems by enhancing the enabling environment

Market Size and Current Penetration of Off-Grid Solar Systems in Selected Countries, 2017

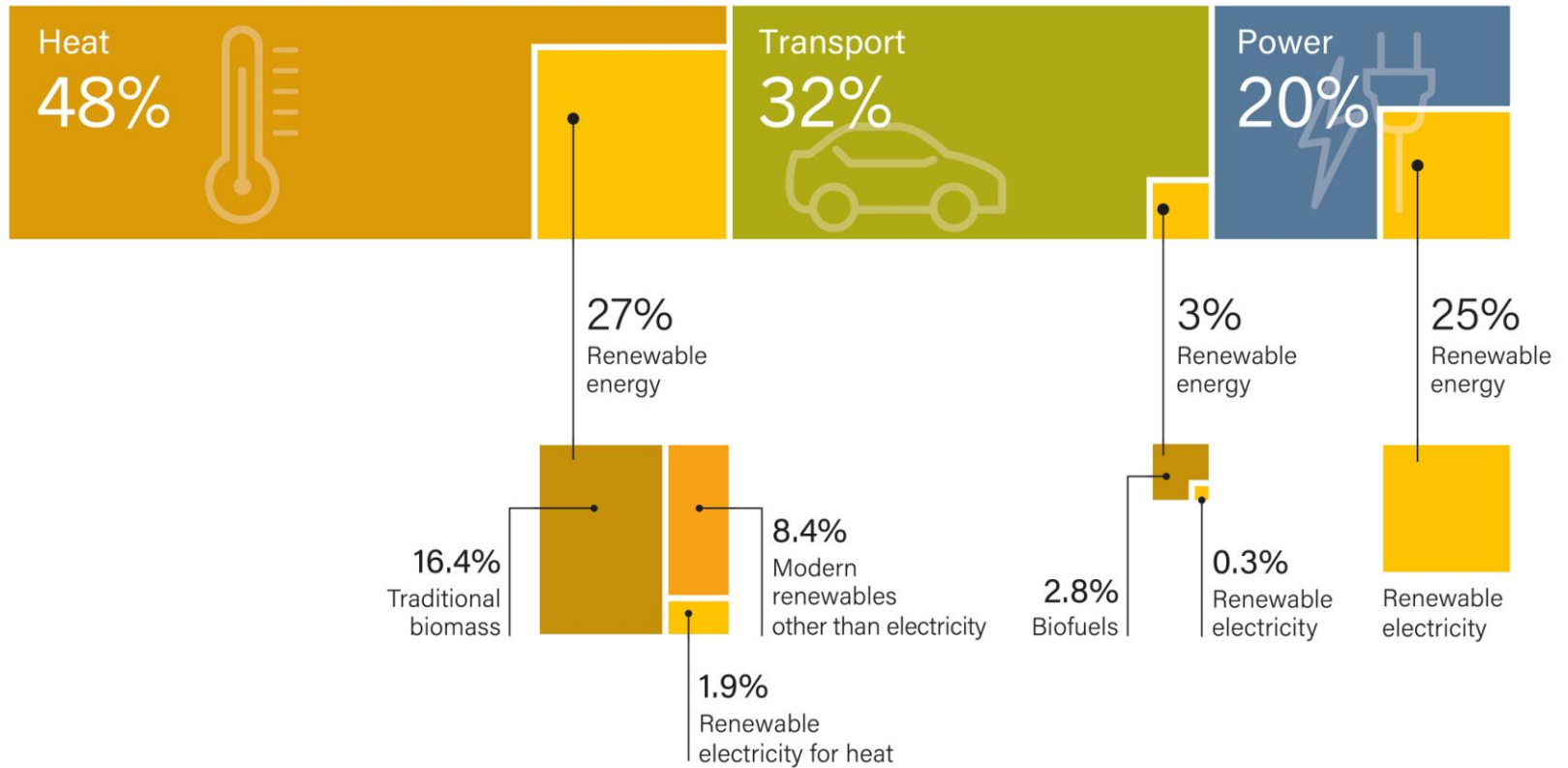


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Renewable Energy in TFEC by Sector

Renewable Energy in Total Final Energy Consumption, by Sector, 2015



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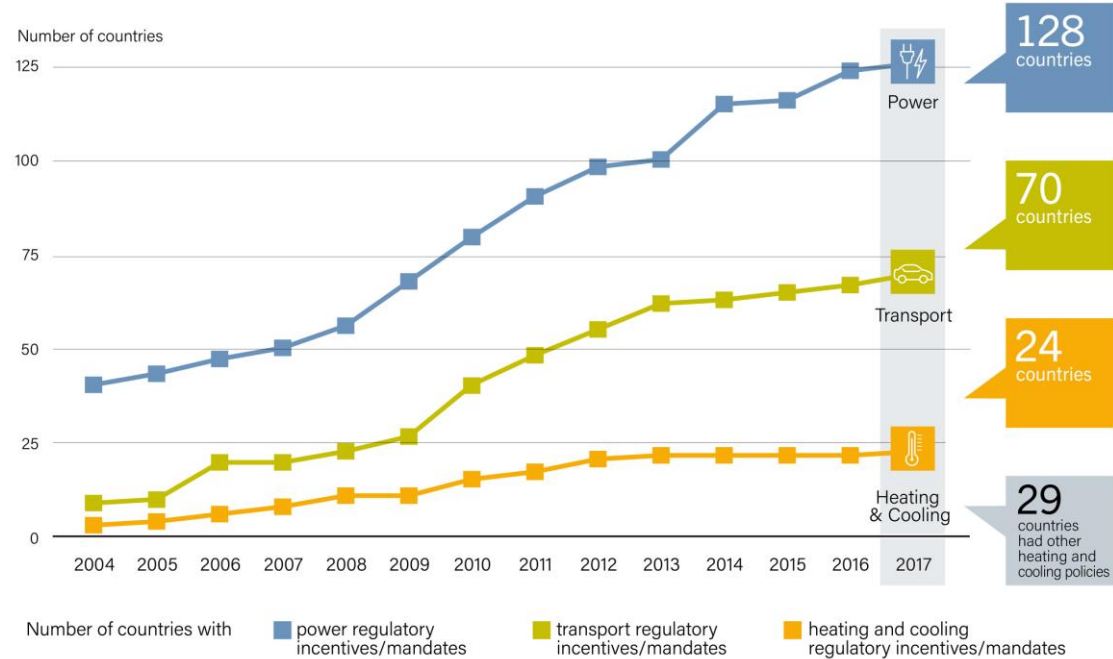
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Renewable Energy Policies

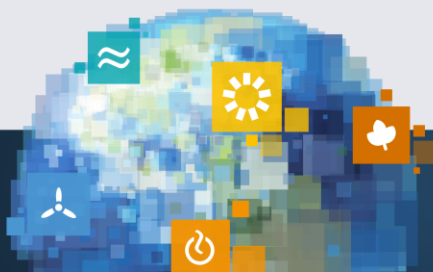
- **128** countries had renewable **power** policies
- **70** countries had renewable **transport** policies
- **24** countries had renewable **heating and cooling** policies

Number of Countries with Renewable Energy Regulatory Policies, by Sector, 2004-2017



Source: REN21 Policy Database

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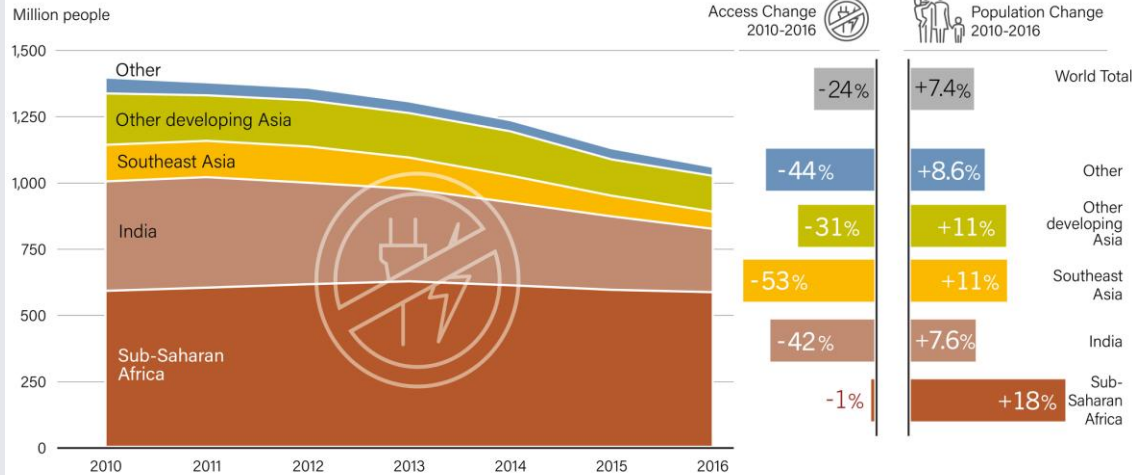


Access to Electricity

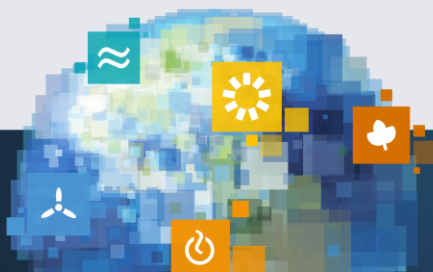
→ In 2016: **14%** of the global population lived **without electricity** – approx. 1.06 billion people (majority in SSA and Asia-Pacific regions)

→ **DREA systems** were serving **~300 million people** by end-2016

Population Without Access to Electricity, by Region or Country, 2010-2016



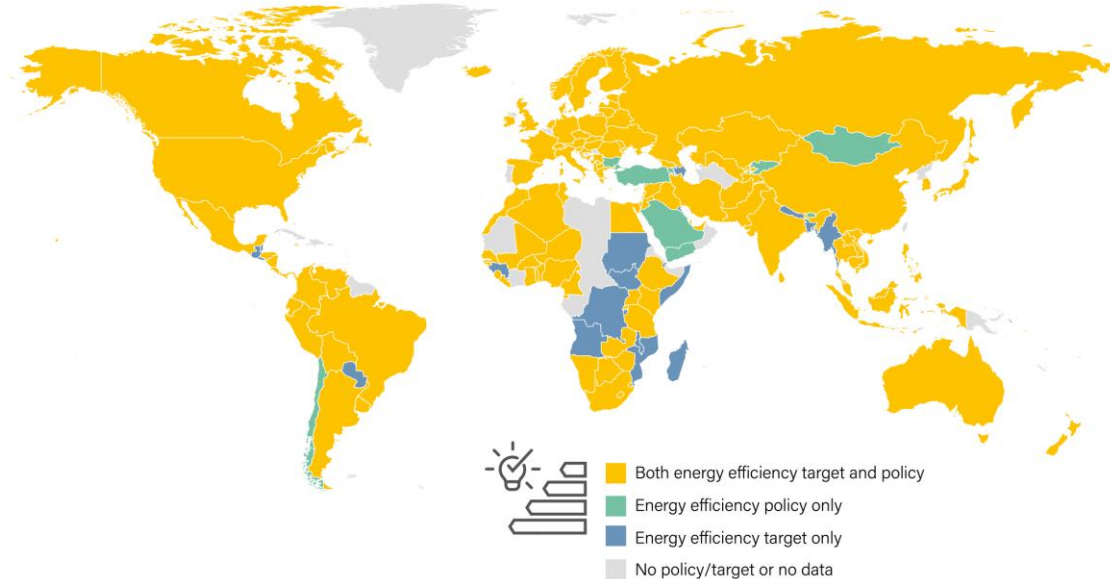
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Heating and Cooling

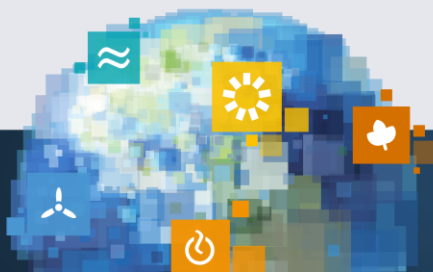
- By end-2017, at least **145 countries** had enacted some kind of **energy efficiency policy**
- At least **157 countries**: one or more energy efficiency target
- Mandatory and voluntary **energy codes for buildings** exist in **>60 countries** worldwide

Countries with Energy Efficiency Policies and Targets, End-2017



Source: REN21 Policy Database

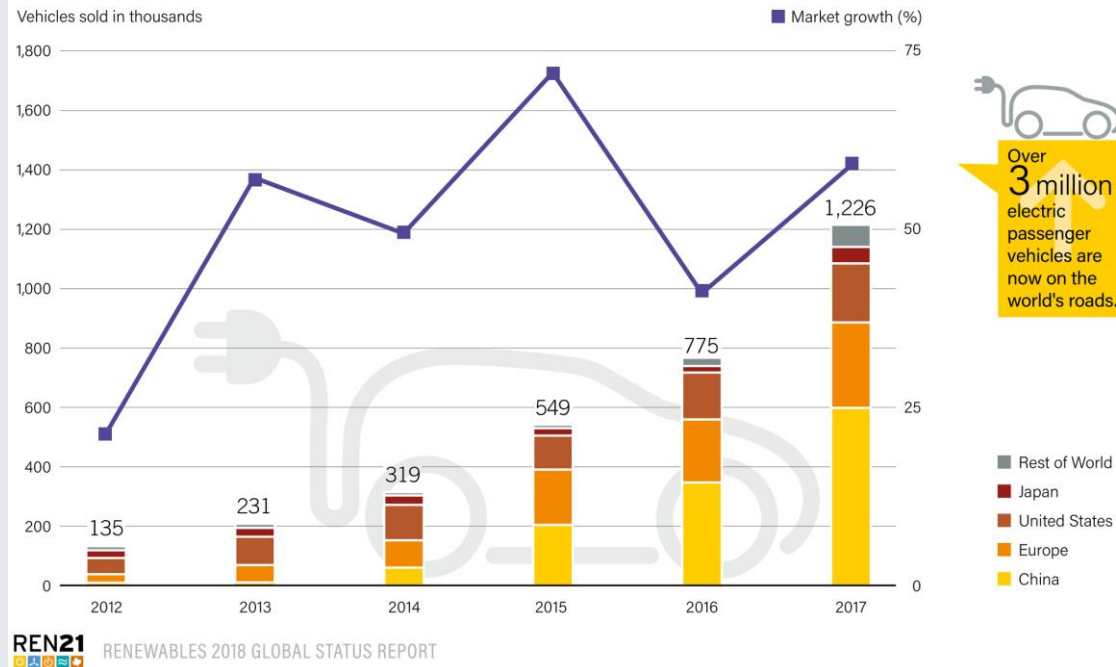
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Global Passenger EV Market

- **Electrification trend in 2017**
- Global sales of electric passenger cars (including PHEVs): **1.2 million units**, up about **58%** over 2016
- **>3 million electric passenger vehicles on the road** (+70% relative to 2016, but still only representing **1%** of light vehicle market)
- **Potential to create a new market for RE and facilitate integration of VRE**

Global Passenger Electric Vehicle Market (including PHEVs), 2012-2017



Conclusions

- Global renewable power transition advancing with record capacity additions and rapidly falling costs – **The transition is possible!**
- **However, progress not fast enough to reach Paris Agreement goals and SDGs**
- **Better-integrated sectors** needed: planning, policies and regulatory frameworks
- Systems approach necessary: link **energy efficiency** and **renewable energy**, employ sector coupling
- Create a **level playing field** for renewables and decentralised off-grid renewables
- **Make all trends visible:** Much is happening, but data is not consolidated – renewables at local and sub-national level, distributed off-grid renewables, innovative business models

