

Global Renewable Energy Development and Status

Prof. Arthouros Zervos
President REN21



REN21 IS AN INTERNATIONAL POLICY NETWORK DEDICATED TO BUILDING A SUSTAINABLE RENEWABLE ENERGY FUTURE

GOVERNMENTS

Afghanistan, Brazil, Denmark, Dominican Republic, Germany, India, Mexico, Norway, Republic of Korea, South Africa, Spain, UAE, USA

NGOs

Club-ER, CLASP, CCA, CAN-I, Energy Cities, FER, Global 100% RE, GFSE, GWNET, Greenpeace Intl, ICLEI, ISEP, IEC, JVE, MFC, Power for All, REEEP, REI, SCI, SLOCAT, WCRE, WFC, WRI, WWF

SCIENCE & ACADEMIA

AEE INTEC, CEEW, Fundacion Bariloche, Higher School of Economics (Russia), IIASA, ISES, NREL, SANEDI, TERI

INTERGOVERNMENTAL ORGANISATIONS

ADB, APERC, ECREEE, EC, GEF, IEA, IRENA, IsDB, RCREEE, UNDP, UN Environment, UNIDO, World Bank

INDUSTRY ASSOCIATIONS

AMDA, ARE, ACORE, APREN, ALER, CREIA, CEC, EHP, EREF, GOGLA, GSC, GWEC, IREF, IGA, IHA, RES4Africa, WBA, WWEA

THE ONLY GLOBAL, RENEWABLE ENERGY, MULTI-STAKEHOLDER COMMUNITY

The only **global community** of renewable energy actors from science, academia, NGOs, governments, and industry.

Our more than **2,000 community members** co-operate collecting information, changing norms and debating.



We build upon a **decentralized intelligence**, ensuring high responsiveness to an ever changing environment.

Our **annual publications** are probably the world's most comprehensive, crowdsourced reports on renewables.

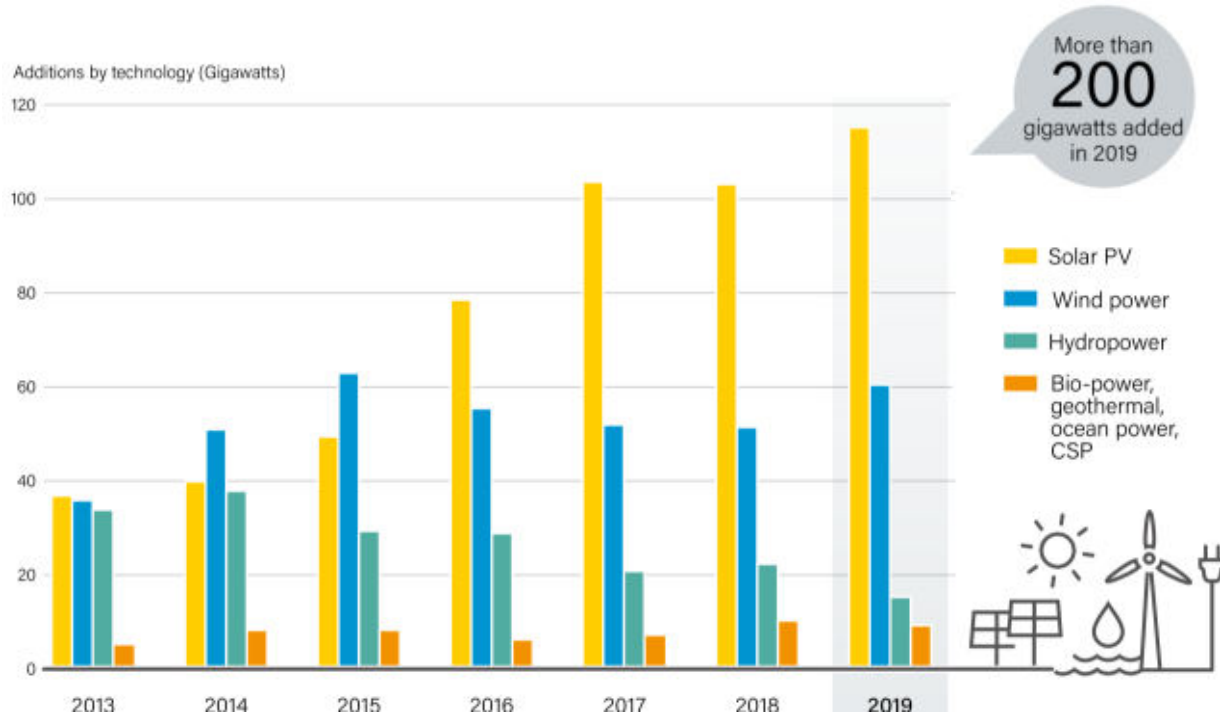
RENEWABLES IN 2020

RENEWABLE ELECTRICITY OUTCOMPETES EXISTING COAL

- Despite suffering during the onset of the pandemic, renewable energy saw a record increase of new power capacity in 2020 globally and was the only source of electricity generation to see a net increase in total capacity
- Investment in renewable power capacity increased (albeit slightly) for the third consecutive year, and corporations continued to break records for sourcing renewable electricity.
- More countries are turning towards electrification of heat with renewable energy, and although production of transport biofuels decreased, EV sales expanded as did the linking of EVs to renewable power to a lesser extent
- For the first time ever, the number of countries with renewable energy support policies did not increase from the previous year.
- Investment in renewable energy in COVID-19 recovery packages was almost six times less than for fossil fuels.
- Even with the historic decline in energy consumption last year, the five G20 countries with renewable energy targets struggled toward their goals. The other 15 did not even have one.

It is now cheaper to build new wind or solar PV plants than to operate existing coal-fired power plants

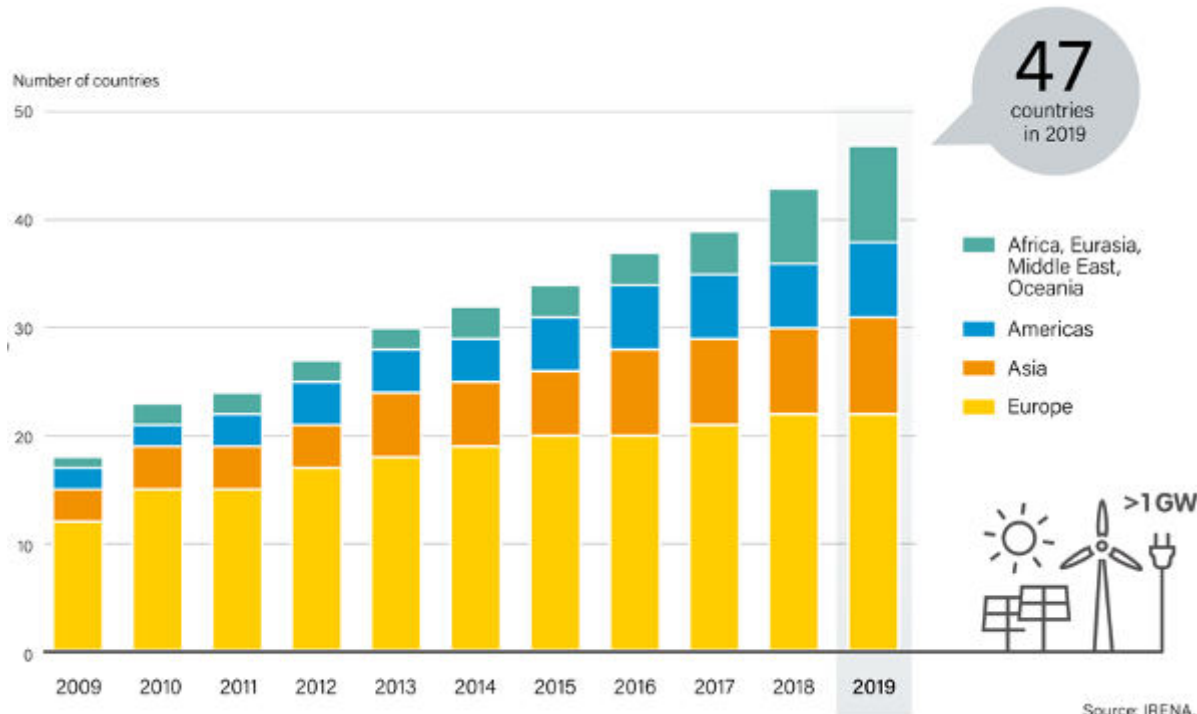
A RECORD 256 GIGAWATTS OF RENEWABLE POWER ADDED IN 2020



Annual Additions of Renewable Power Capacity, by Technology and Total, 2013-2019

Most of the additions were from **solar PV (115 GW)** and **wind power (93GW)**

SOLAR PV AND WIND POWER ARE SPREADING AROUND THE WORLD

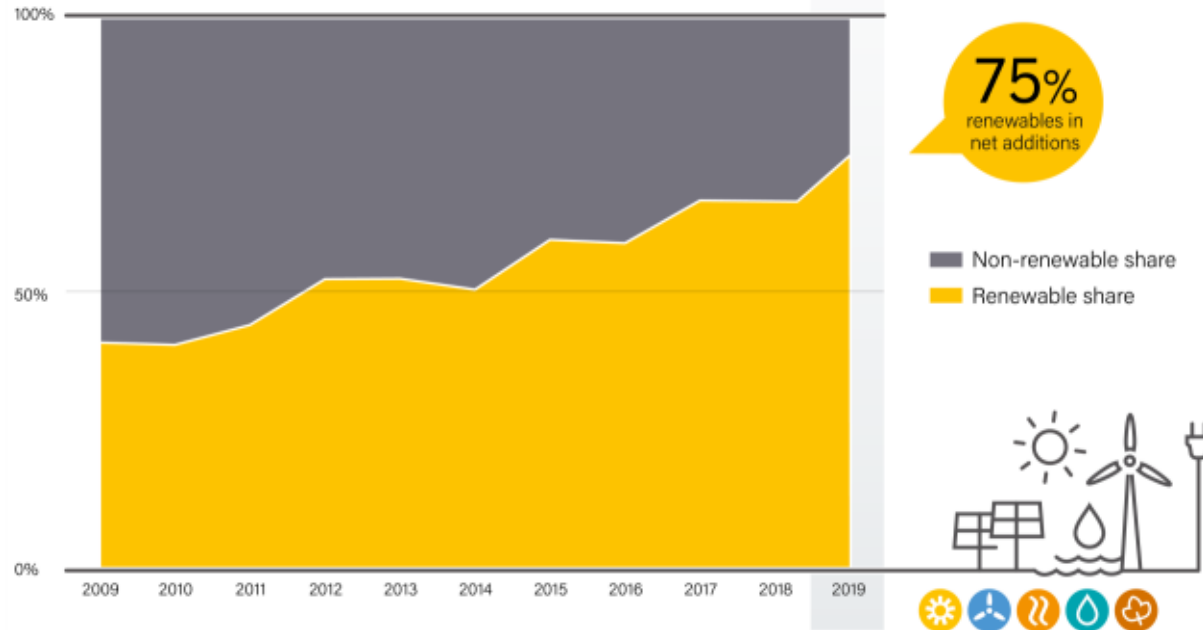


Number of Countries with More Than 1 GW of Solar PV and Wind Power, by Region, 2009-2019

47 countries had installed at least 1 GW of solar PV and wind power. compared to **18 countries** in 2009.



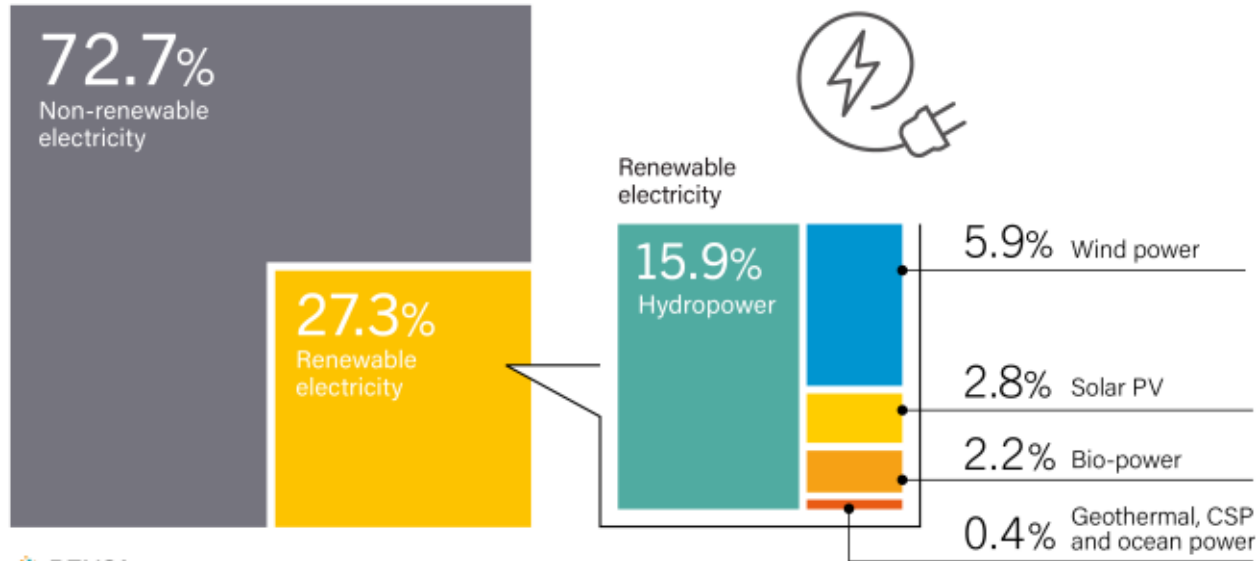
RENEWABLES REACHED 83% OF NET POWER CAPACITY ADDITIONS IN 2020



Renewable and Non-renewable Shares of Net Annual Additions in Power Generating Capacity, 2009-2019

For **the sixth year in a row**, net additions of renewable power generation capacity were higher than net installations of both fossil fuel and nuclear power capacity combined.

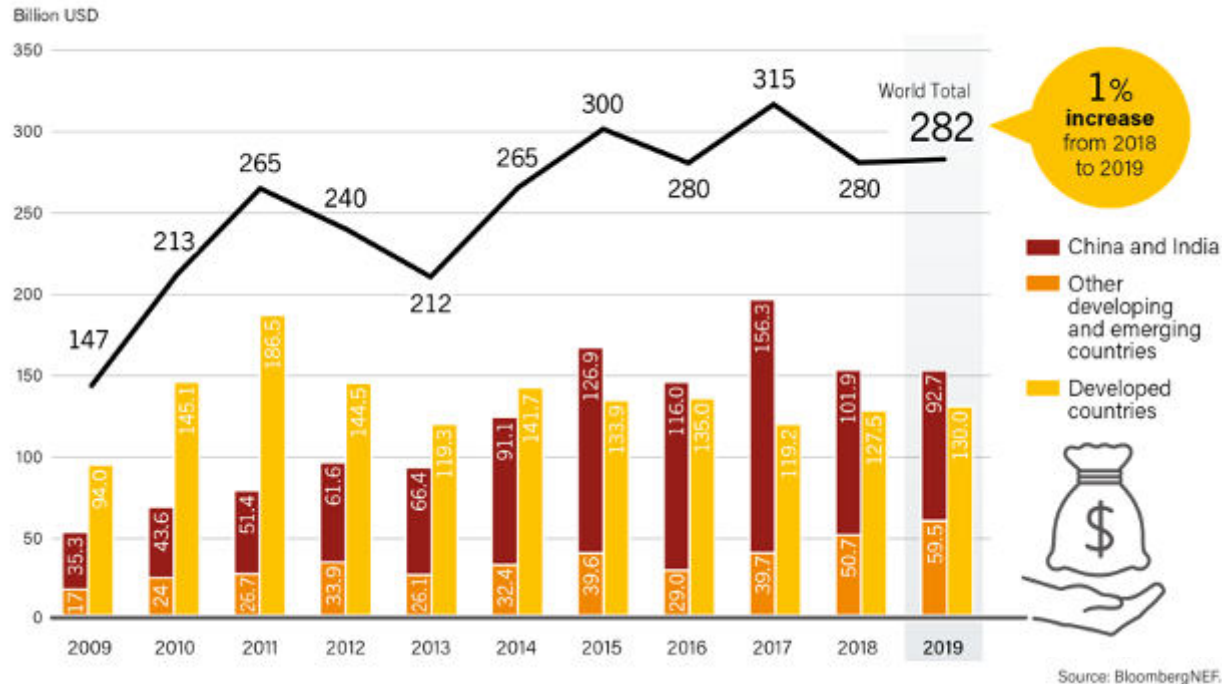
MORE THAN 29% OF GLOBAL ELECTRICITY IS NOW RENEWABLE



Estimated Renewable Energy Share of Global Electricity Production, End-2019

Renewable energy reached its highest recorded share in the global electricity mix in 2020 in large part due to low operating costs and preferential access to electricity networks during periods of low electricity demand.

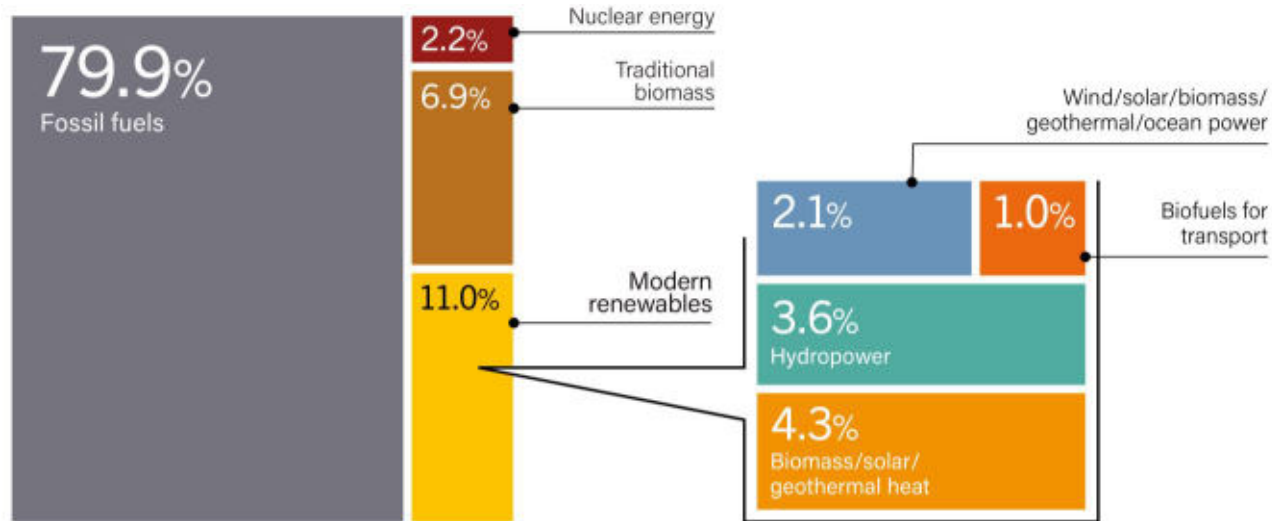
INVESTMENT IN RENEWABLES HAS BARELY GROWN (+2% IN 2020)



Global Investment in Renewable Power and Fuel Capacity in Developed, Emerging and Developing Countries, 2009-2019

Developing and emerging economies surpassed developed countries in renewable energy capacity investment for the fifth year running, reaching USD 152 billion.

ONLY MODERATE CHANGE IN RENEWABLE SHARE OF ENERGY DEMAND



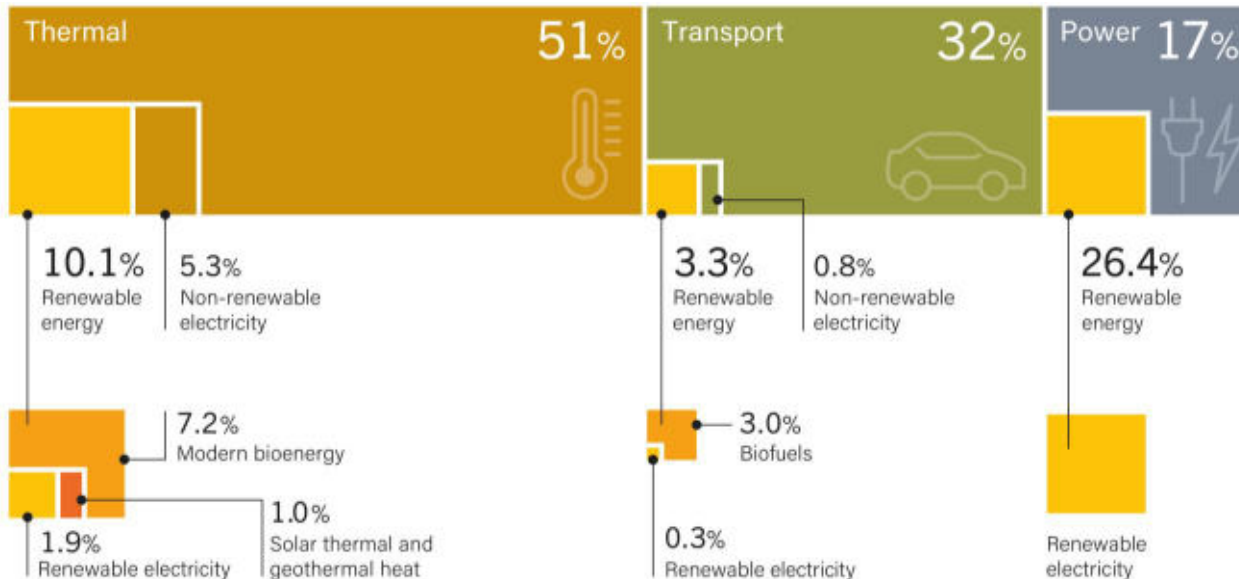
Estimated Renewable Share of Total Final Energy Consumption, 2017

Note: Data should not be compared with previous years because of revisions due to improved or adjusted data or methodology. Totals may not add up due to rounding.

Source: Based on IEA data.

Renewable share grew from **9.6%** in 2013 to only **11,2%** in 2019. Traditional biomass 6.5% in 2019. 80.2% of fossil fuels in 2019.

MORE THAN 80% OF OUR ENERGY FOR HEATING, COOLING, TRANSPORT

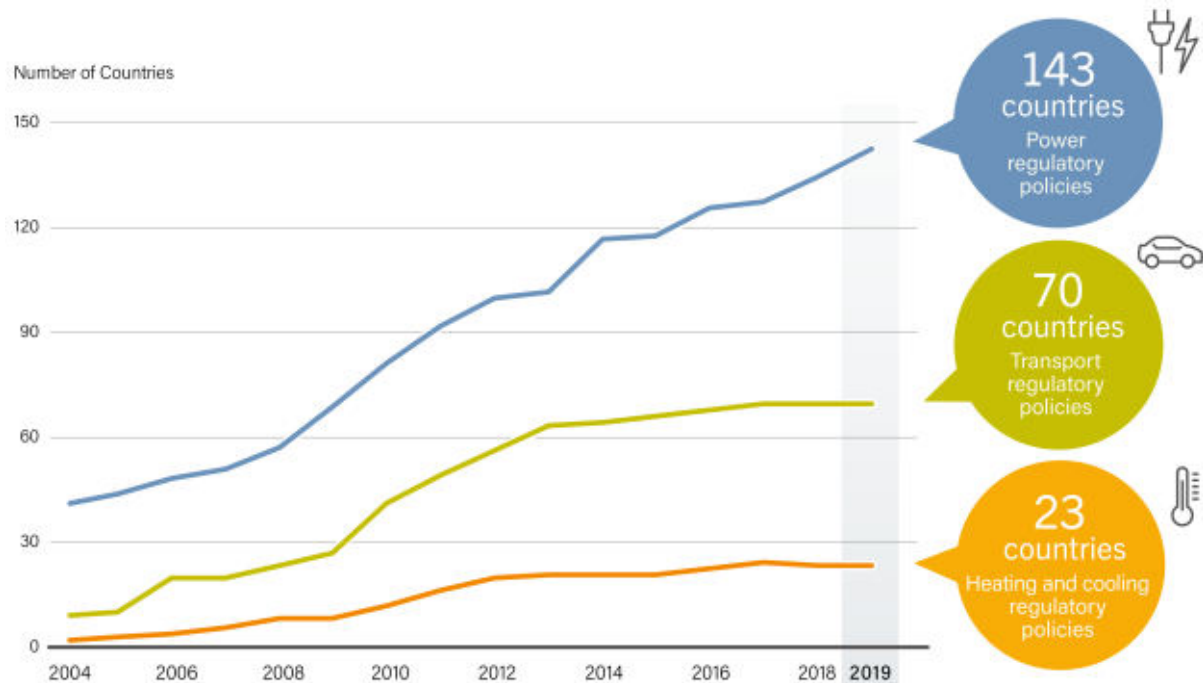


Share of Electricity Generation from Variable Renewable Energy, Top Countries, 2019

Most focus is on the power sector.

But the **greatest urgency** is in heating, cooling and transport.

POWER SECTOR CONTINUES TO RECEIVE MOST POLICY ATTENTION



Number of Countries with Renewable Energy Policies, 2004-2019

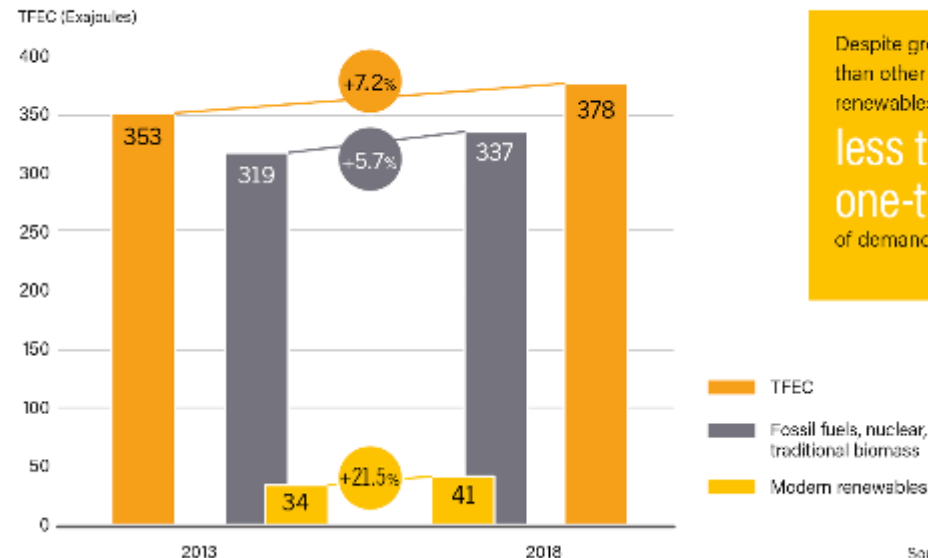
Policies and targets **renewables in power** remain more ambitious and more numerous than those for other sectors.

RENEWABLES ARE GROWING FAST... BUT NOT FAST ENOUGH

RISING ENERGY DEMAND KEEPS RENEWABLE SHARE LOW


- Renewables grew three times faster than fossil fuels
- Renewable energy only accounted for **29%** of demand growth
- Energy efficiency and renewables both needed to reduce fossil fuel use

Estimated Global Growth in Renewable Energy Compared to Total Final Energy Consumption, 2013-2018



Despite growing faster than other energy sources, renewables made up **less than one-third** of demand growth.

Source: Based on IEA data.

An octopus is shown swimming in clear blue water. The octopus is positioned on the left side of the frame, with its tentacles extending towards the right. In the upper right corner, there are several colorful geometric shapes: a teal circle, a blue circle, a yellow circle, and several elongated bars in teal, orange, and yellow. The text "RENEWABLES NOW" is centered horizontally across the middle of the image.

RENEWABLES NOW

www.ren21.net