

Renewables: Present and Future Role in the 'Covid/ Green Deal/ Recession' Situation

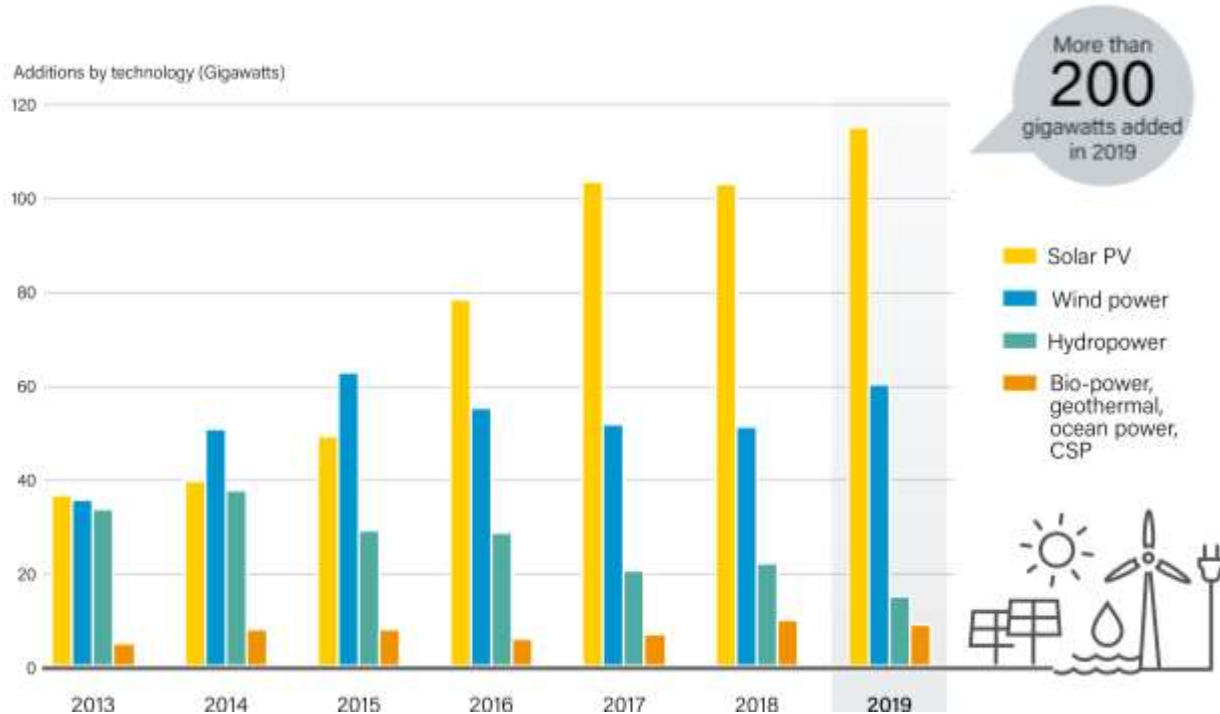
Prof. Arthouros Zervos

President REN21

22 October 2020



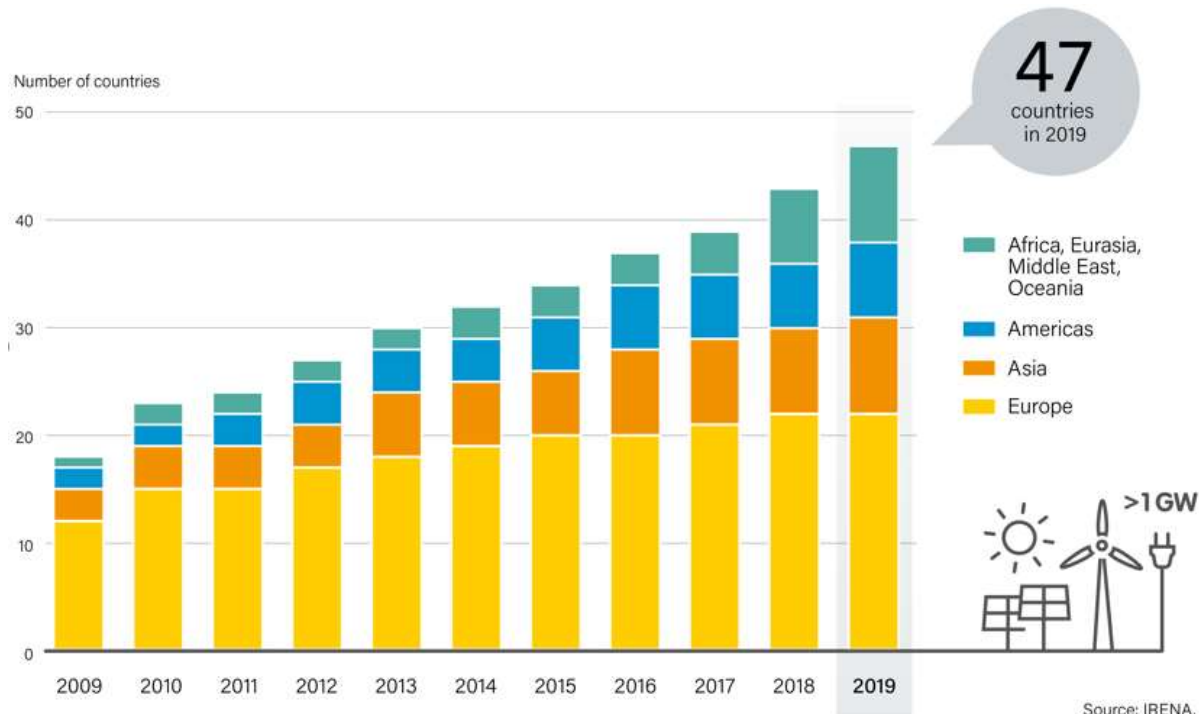
A RECORD 200 GIGAWATTS OF RENEWABLE POWER ADDED IN 2019



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

Most of the additions were from **solar PV (115 GW)**, but global markets for wind power and bio-power also grew during 2019.

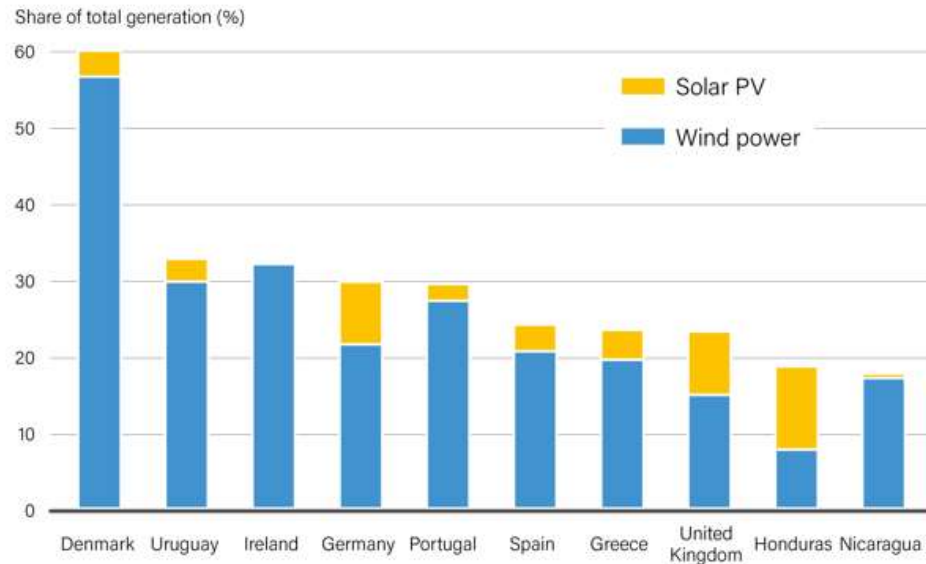
SOLAR PV AND WIND POWER ARE SPREADING AROUND THE WORLD



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.

VARIABLE RENEWABLES REACHING HIGH SHARES IN MANY COUNTRIES

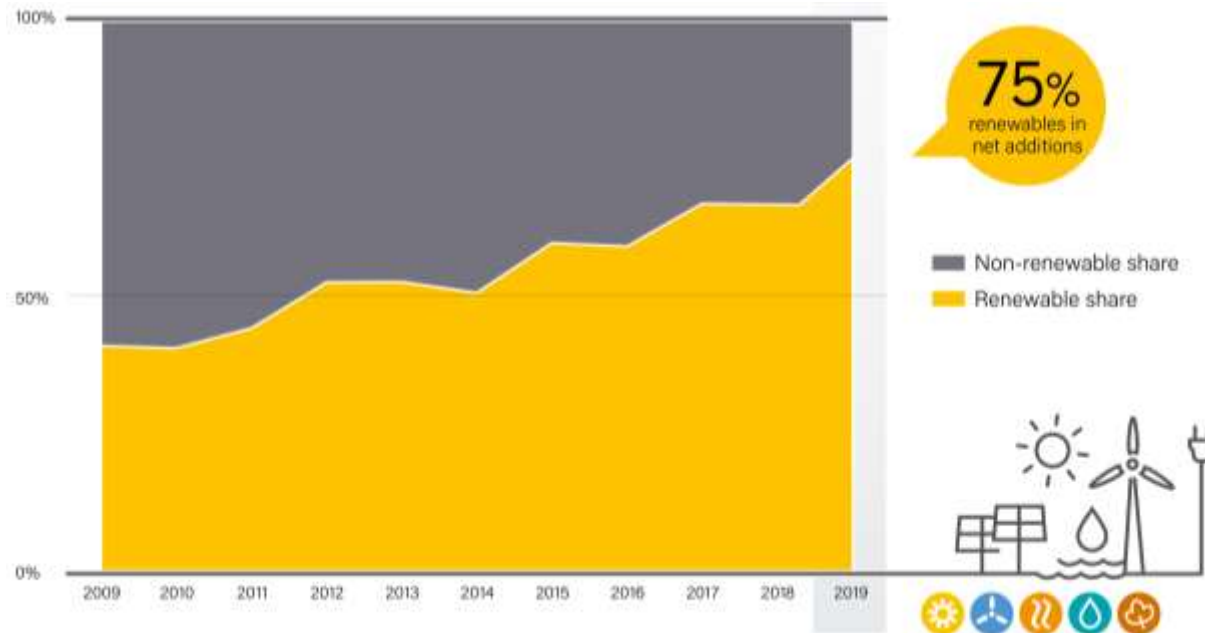


Share of Electricity Generation from Variable Renewable Energy, Top Countries, 2019



At least four countries met **more than 30%** of their electricity generation from VRE in 2019 including **Denmark, Germany, Ireland and Uruguay.**

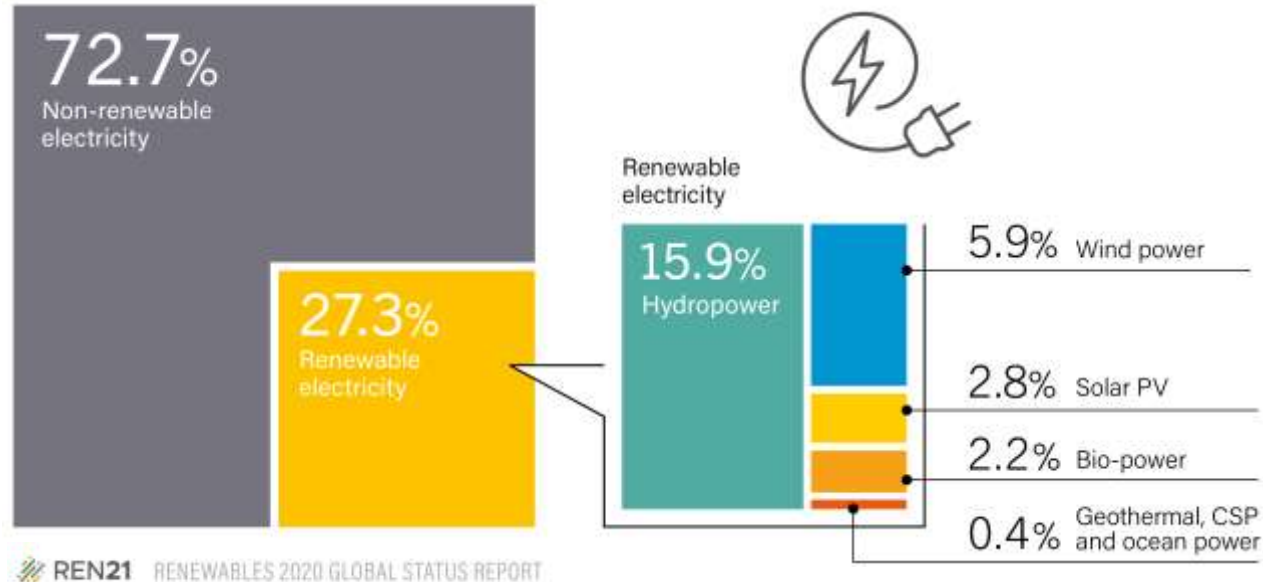
MORE RENEWABLE POWER ADDED THAN FOSSIL FUEL AND NUCLEAR



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

For **the fifth 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.

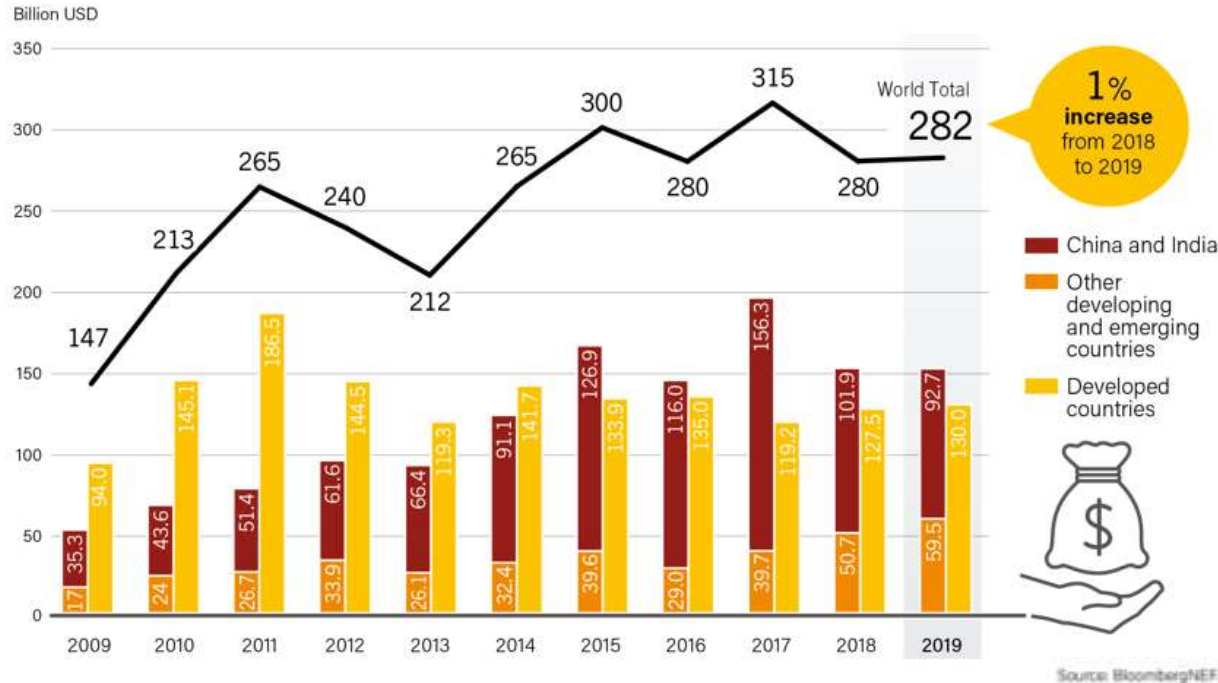
MORE THAN 27% OF GLOBAL ELECTRICITY IS NOW RENEWABLE



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

The share of renewables in electricity generation is **rising in many countries around the world.**

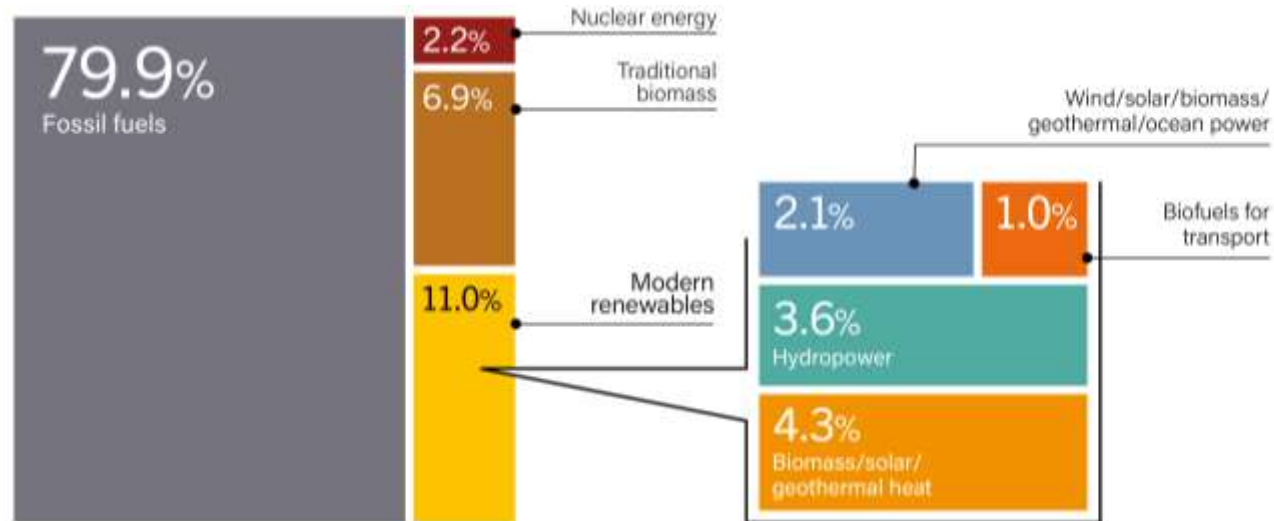
INVESTMENT IN RENEWABLES HAS BARELY GROWN



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



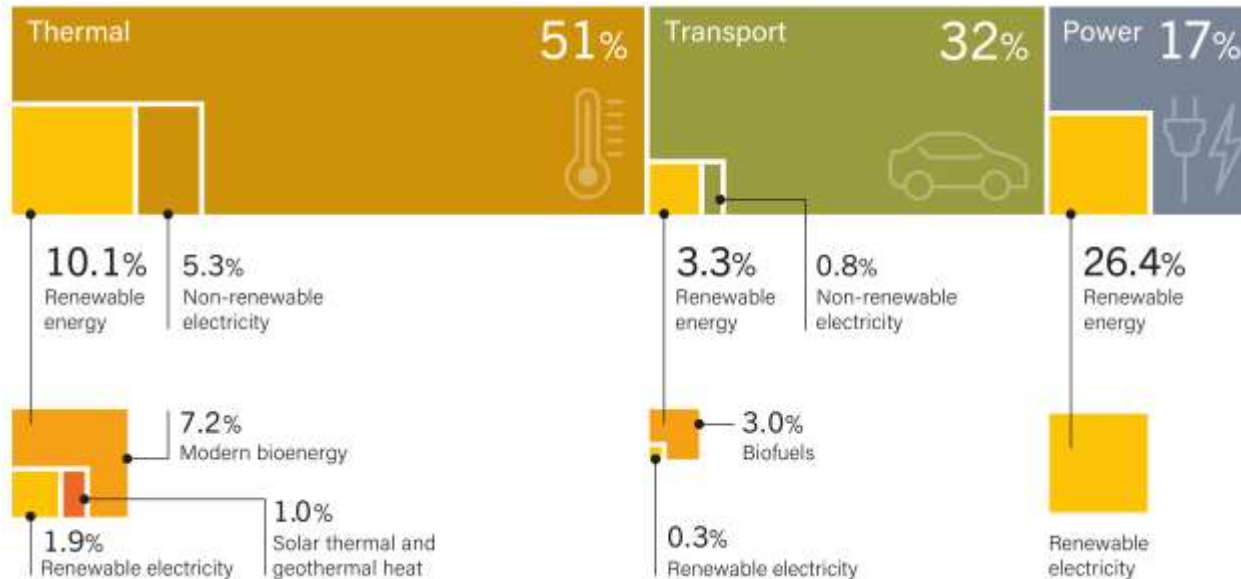
Estimated Renewable Share of Total Final Energy Consumption, 2017

Renewable share grew from **9.6%** in 2013 to only **11%** in 2018.

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.

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.

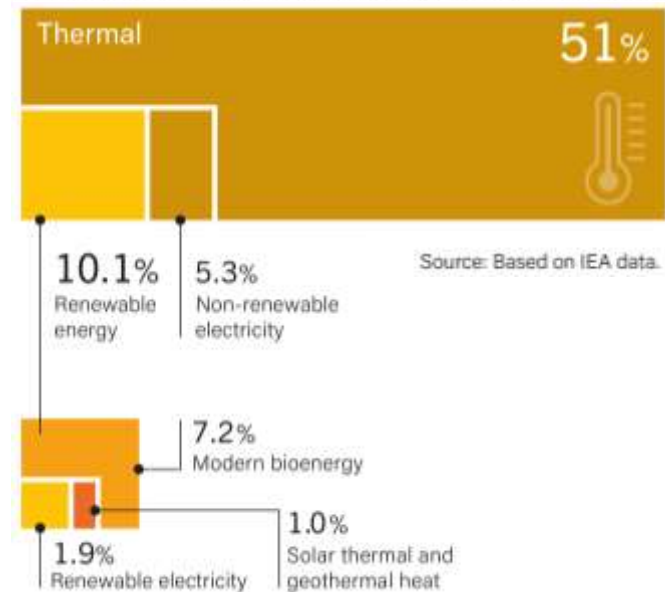
But the **greatest urgency** is in heating, cooling and transport.

RENEWABLES STILL MEET LOW SHARE OF THERMAL ENERGY NEEDS

KEY BARRIERS

- Sector heavily relying on fossil fuel
 - fossil fuel subsidies – no level playing field
 - Upfront capital cost of RE
- Lack of supportive regulatory framework
 - No new H&C policies since 2017
 - No support for electrification
- Resource availability –
- Investments in supporting infrastructure needed (e.g., district heating and cooling)
- Technological advances needed for high-temperature industrial processes

Renewable Share of Total Final Energy Consumption, by Final Energy Use, 2017

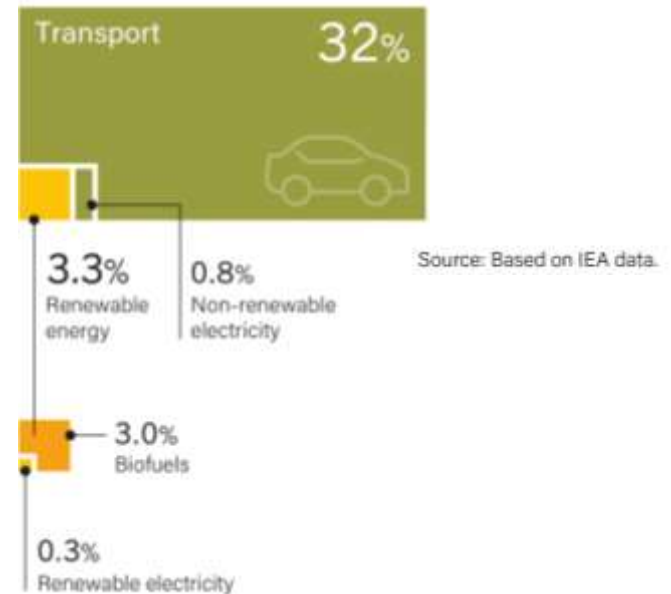


THE SHARE OF RENEWABLES IN TRANSPORT HAS NOT CHANGED

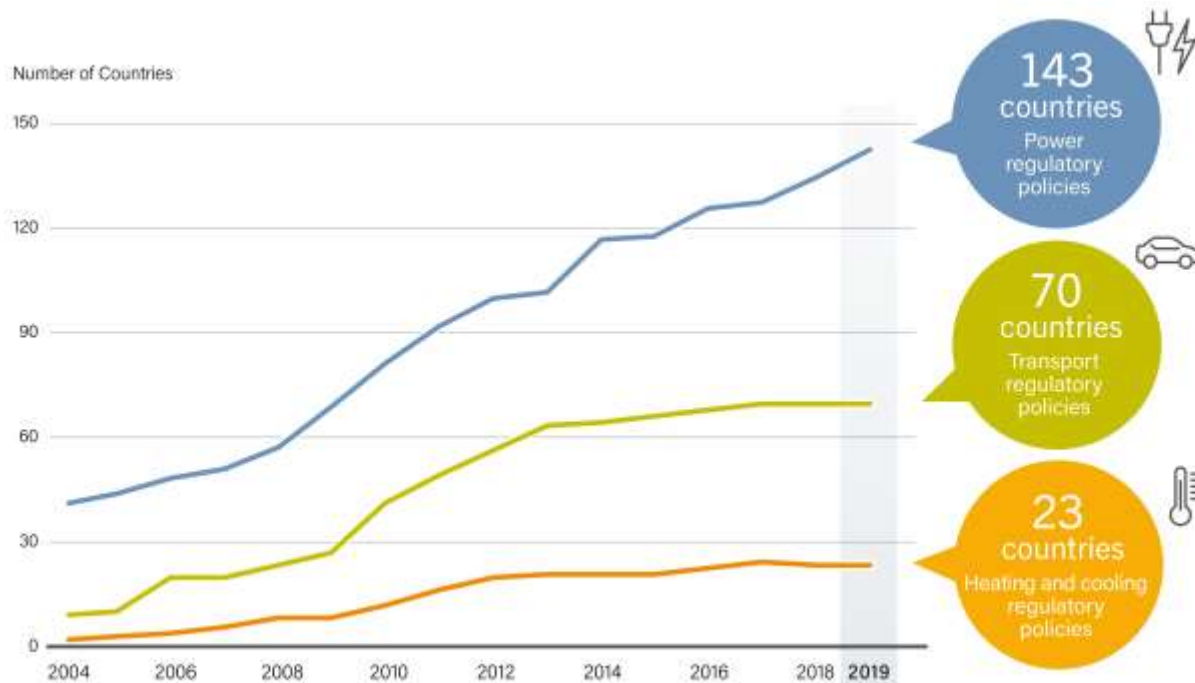
KEY BARRIERS

- Sector heavily relying on fossil fuel
 - Fossil fuel “centered” market structures
 - Fossil fuel subsidies – no level playing field
- Exploding demand growth (+4% p.a.)
- Lack of strong policy support
 - no new countries with biofuel blend mandates since 2017
 - Only nine countries with advanced mandates
 - Only five countries with fuel economy standards
- Limited options in aviation and shipping

Renewable Share of Total Final Energy Consumption, by Final Energy Use, 2017



POWER SECTOR CONTINUES TO RECEIVE MOST POLICY ATTENTION



Number of Countries with Renewable Energy Policies, 2004-2019

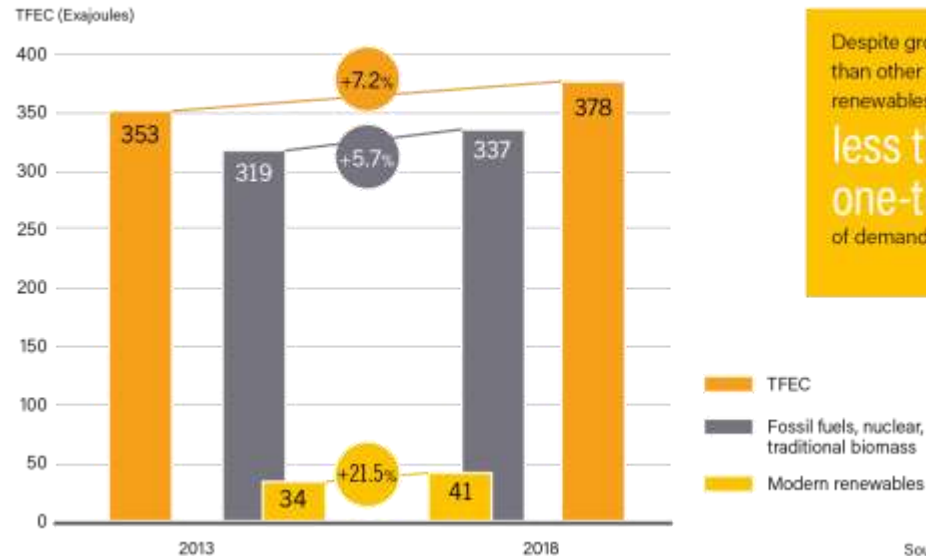
Policies and targets **renewables in power** remain more ambitious and more numerous than those for other sectors.

RENEWABLES ARE GROWING FAST... BUT NOT FAST ENOUGH

RIISING 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.

THE COVID-19 CRISIS AND ITS EFFECTS

RECOVERY OFFERS A UNIQUE CHANCE TO SHIFT TO A LOW-CARBON ECONOMY

- Global energy demand will drop five percent this year and carbon emissions by seven percent.
- Huge shock to the energy industry with all parts of the sector declining except renewables.
- Economic downturns and reduced demand may impact the energy sector negatively until 2023 or even 2025.
- The worst effects of the crisis are felt among the most vulnerable
- Even under these circumstances such an emissions decline is not enough to meet global goals; a decrease in emissions of at least 7% annually over the next decade would be necessary to reach the goal of 2 degree Celsius
- The pandemic's impact on carbon emissions has proven that structural shifts to overhaul our existing fossil fuel- based energy system are necessary
- A step-change in clean energy investment offers a way to boost economic growth, create jobs and reduce emissions
- This approach has not yet featured prominently in plans proposed to date, except in the European Union and a handful of other countries.
- Solutions exist for an immediate shift to efficiency and renewable energy


The outcome will depend on how governments respond to today's challenges.

MANY EXISTING SOLUTIONS SHOULD BE URGENTLY IMPLEMENTED

ACTIONS TO BE TAKEN IN PARALLEL

- **Use policies to actively support renewables across all end-use sectors:**
 - Examples include mandates for renewable heat technologies and incentives to use EVs with RE
 - Create accessible market conditions
- **Make energy efficiency mandatory to decrease energy demand:**
 - Building retrofits and net zero energy codes
 - Promote walking/cycling and public transport
 - Fuel efficiency standards
- **Accelerate the phase-out of fossil fuels**
 - Fossil fuel bans, in particular heating/transport
 - Divest from fossil fuels
 - Remove fossil fuel subsidies
- **Accompany sectors to change:**
 - Integrate planning among all energy sectors
 - Reskilling
 - Public procurement of renewables

A systemic problem requires a **systemic solution**.

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

RENEWABLES NOW

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