

A landscape photograph of a mountain range. The foreground shows rolling hills covered in green vegetation. In the background, there are dark, rocky mountains with patches of snow. The sky is a pale, overcast blue.

IES LAS FUENTES

Climate change in Spain

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- 5. How climate change effecting our country.
- 6. What can we do to solve it.



1.INTRODUCTION

GREENHOUSE EFFECT



What is the Greenhouse effect?

It is the rise in temperature of the atmosphere that occurs as a result of the concentration in the atmosphere of gases.

The mechanism is that the sun radiates solar energy to the earth. Most of this energy (45%) is radiated back into space, but greenhouse gases absorb the rest of that solar energy, causing the atmosphere to warm up.

1. INTRODUCTION

GASES THAT ARE CAUSING THE GREENHOUSE EFFECT



CARBON DIOXIDE (CO₂)

This gas enters the atmosphere mostly through burning **fossil fuels (coal, natural gas and oil)**. This gas is removed from the atmosphere when it's absorbed by plants as a part of the biological carbon cycle.

METHANE (CH₄)

This gas is emitted during the **production and transport of the fossil fuels**, and also from the farm (cows)

FLUORINATED GASES

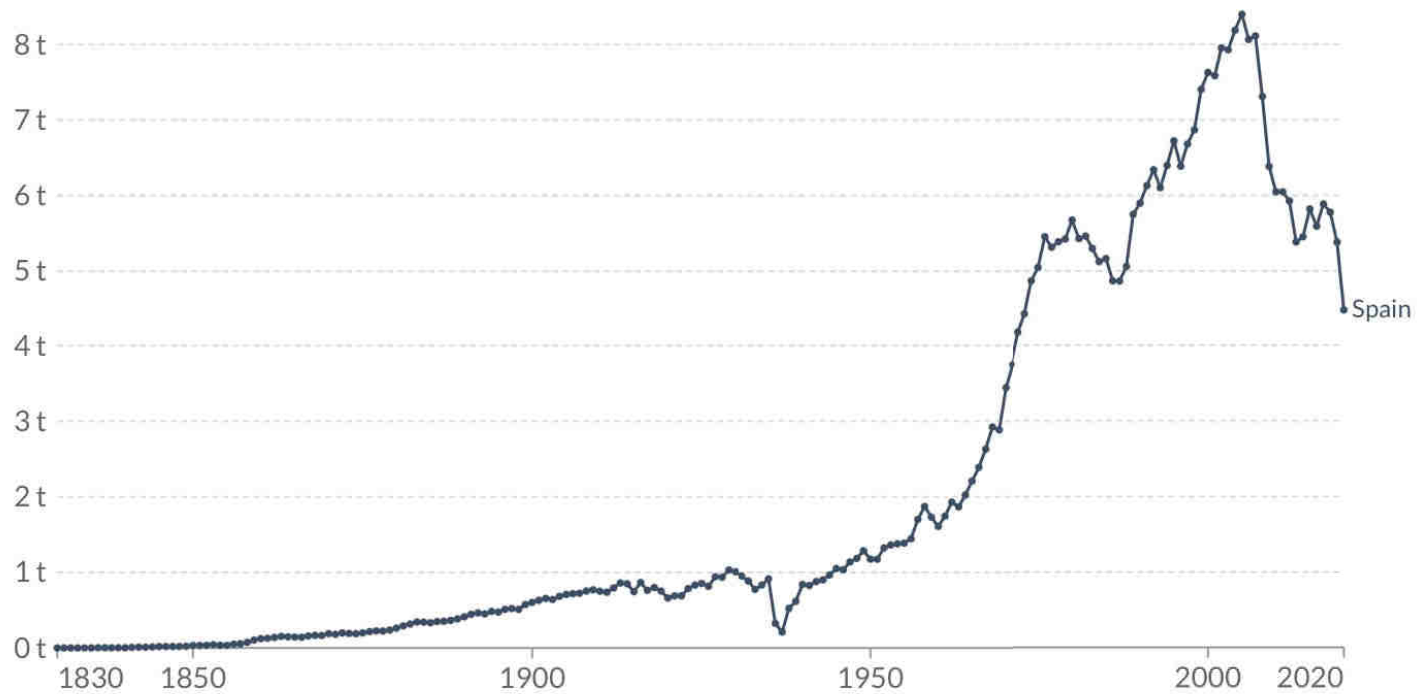
They are typically emitted in smaller quantities, but they're **potent greenhouse gases**. These gases are referred to as "High Global Warming Potential Gases" (High GWP Gases).

Per capita CO₂ emissions

Carbon dioxide (CO₂) emissions from the burning of fossil fuels for energy and cement production. Land use change is not included.

Our World
in Data

Add country Relative change

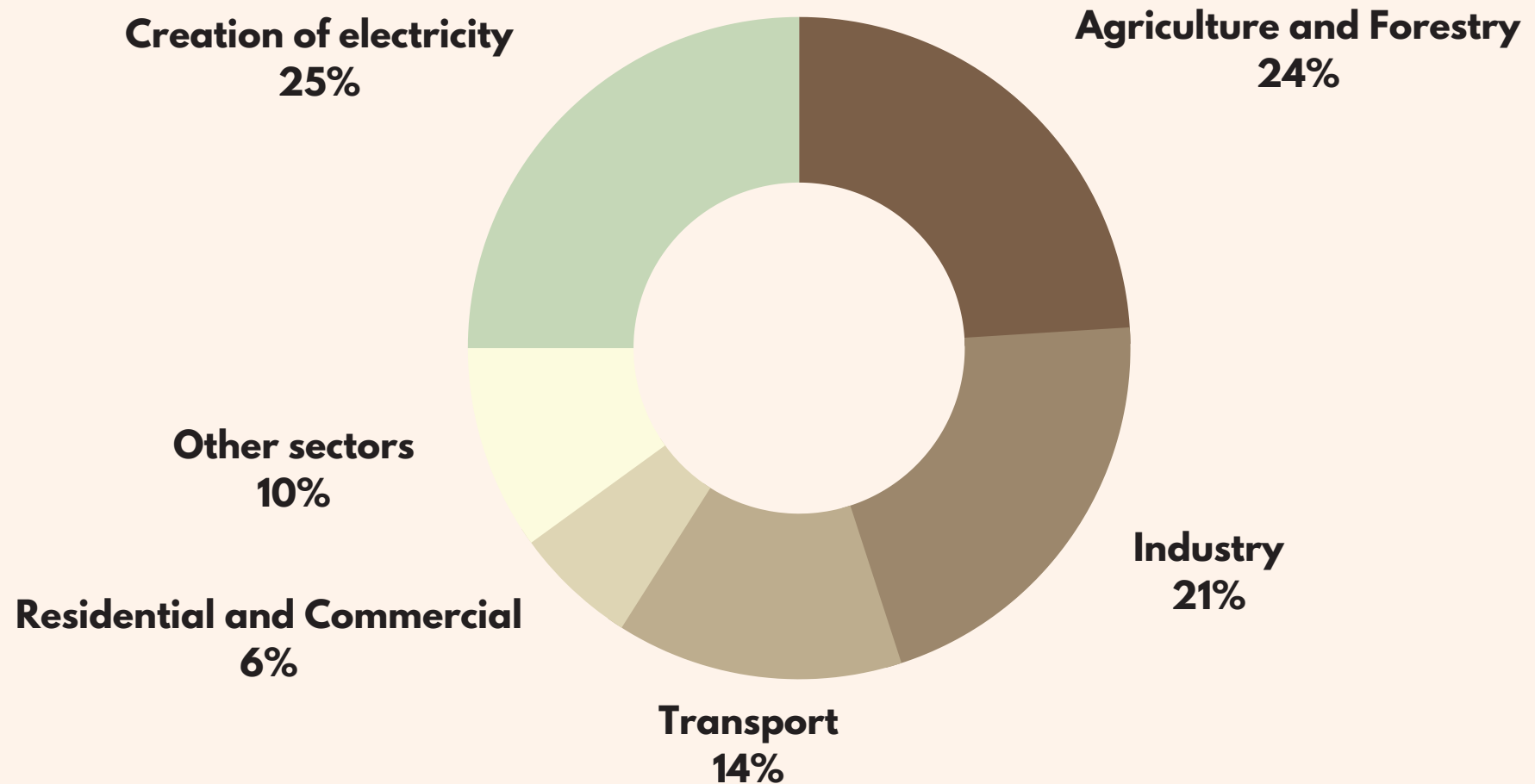


Source: Our World in Data based on the Global Carbon Project

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY



2. SECTORS THAT CONTRIBUTE MOST TO CLIMATE CHANGE IN SPAIN

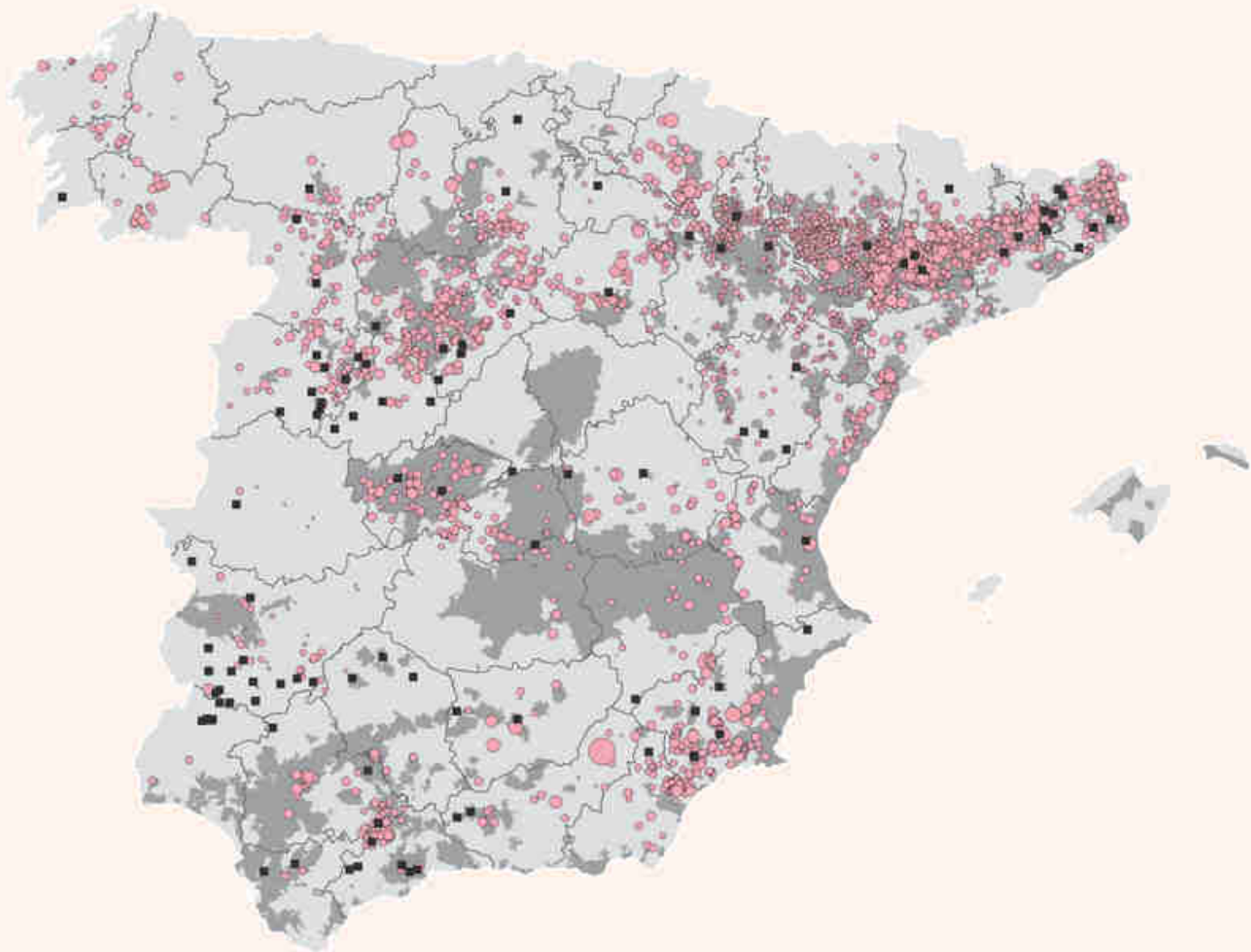


"MACROGRANJAS"

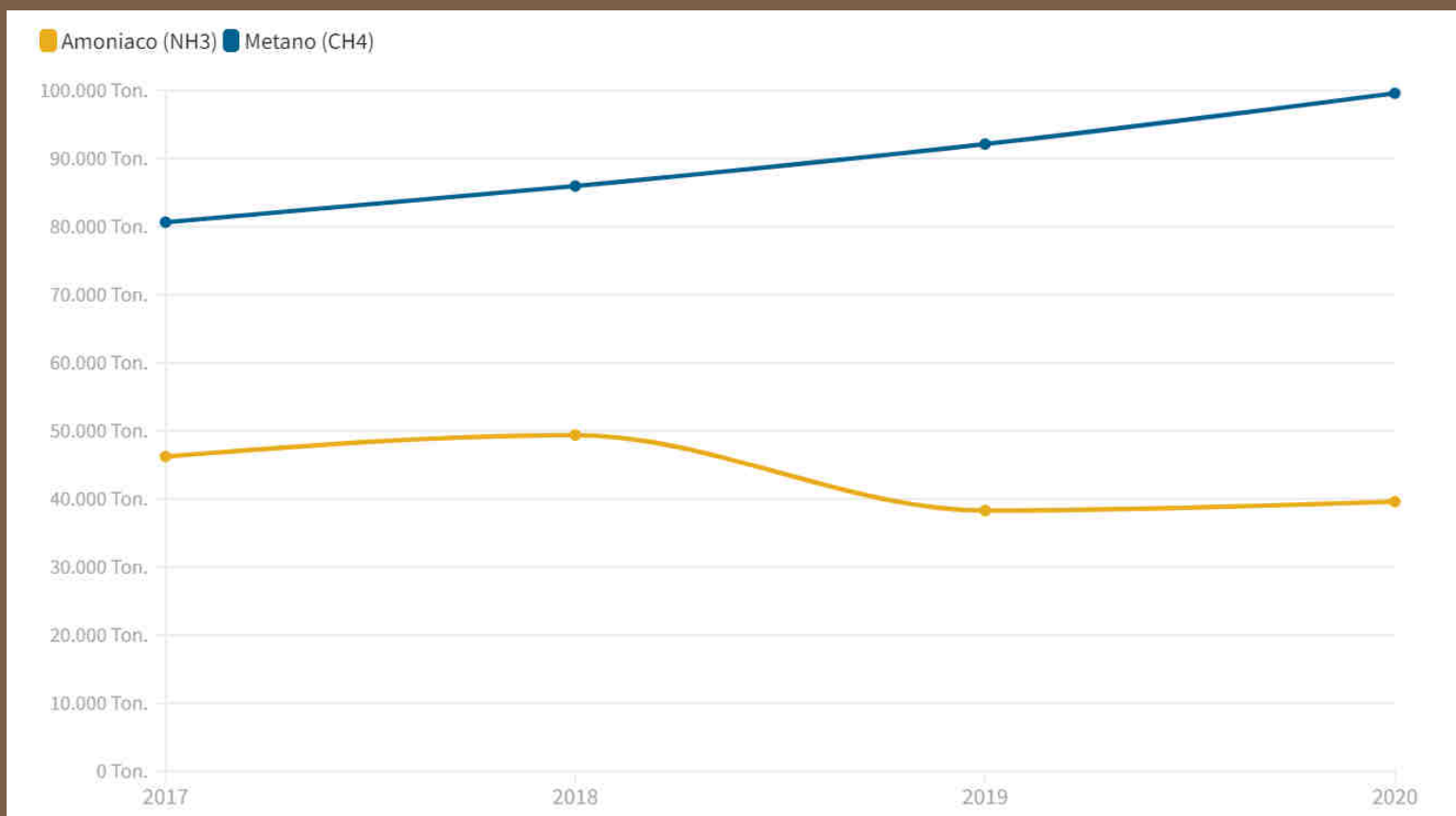
A macro-farm is a factory farming facility where the density of animals is very high.

Since 2013, Spain has been increasing its methane emissions due to the increase in the number of animals in livestock farms and the use of organic (manure) and inorganic fertilisers.

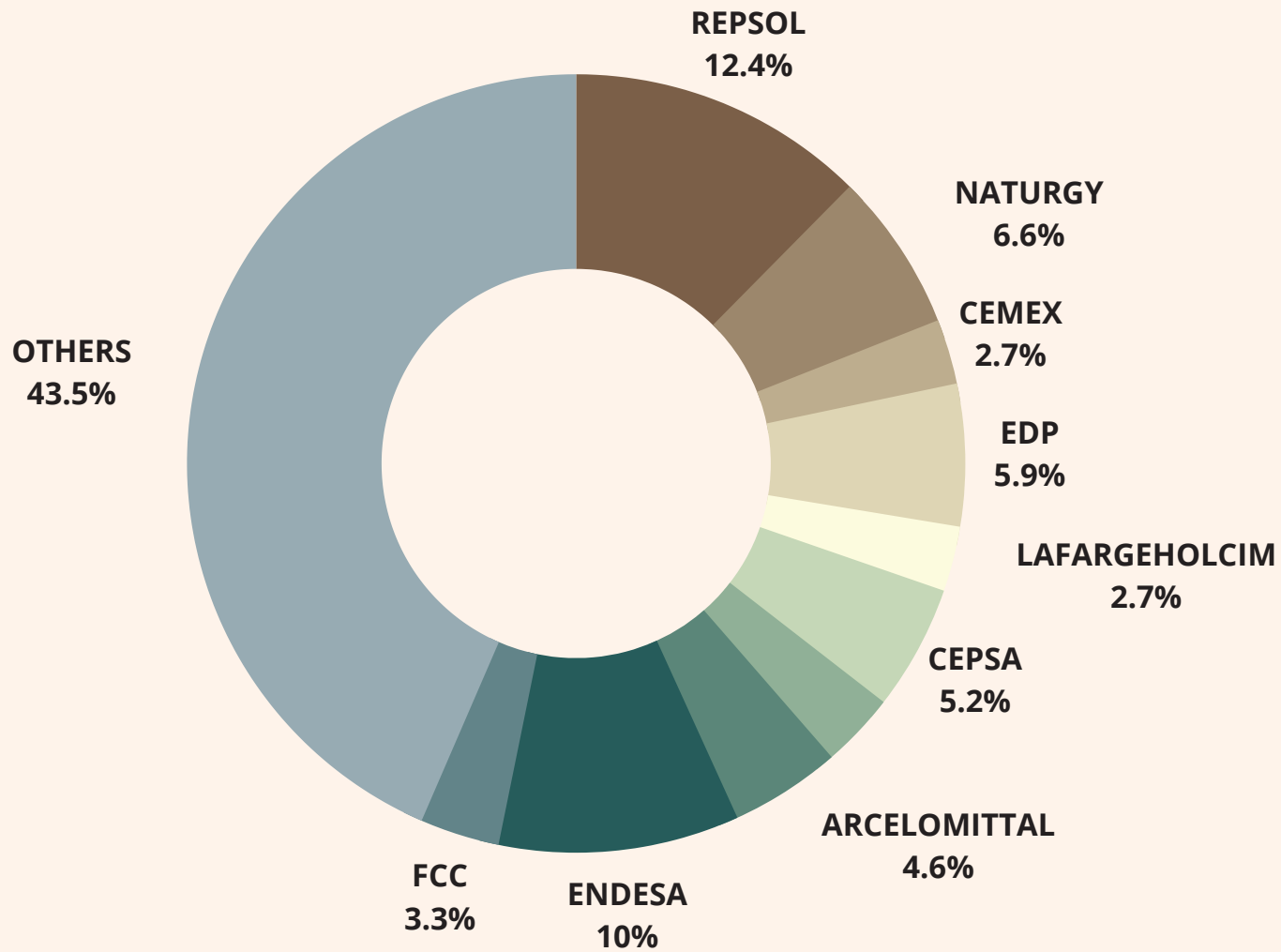




ANNUAL METHANE AND AMMONIA EMISSIONS FROM LARGE-SCALE PIG FARMS

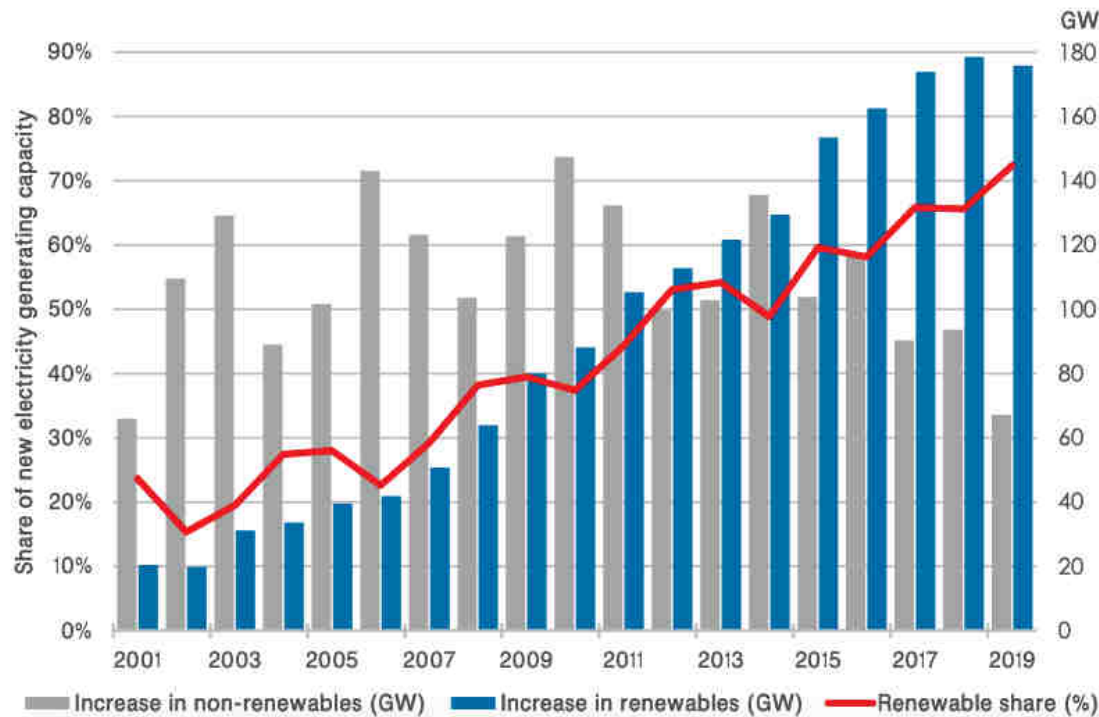


The ten companies shown in this graph generate 56% of all CO2 produced directly by industrial facilities (and 20% of the country's total). These are data collected in a report published by the Sustainability Observatory.



3. PRODUCTION OF ELECTRICAL ENERGY IN SPAIN AND ITS EVOLUTION

Renewable share of annual power capacity expansion



Since 2010 the coal-fired power plants in Spain have been closed due to the loss of competitiveness caused by the increase in the cost of the right to CO2 emissions.

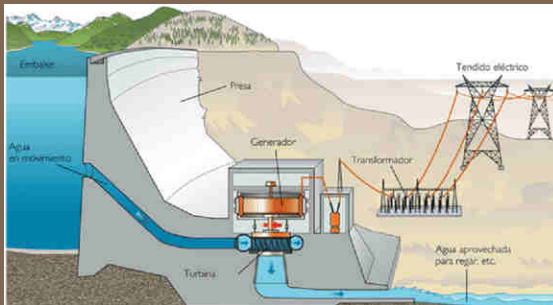
As a consequence of the policies against climate change, and the use of renewable energies.

3. PRODUCTION OF ELECTRICAL ENERGY IN SPAIN

RENEWABLE ENERGY

HYDROPOWER

in Spain varies over the years, depending on rainfall.



WIND ENERGY

the technology with the greatest contribution to demand coverage

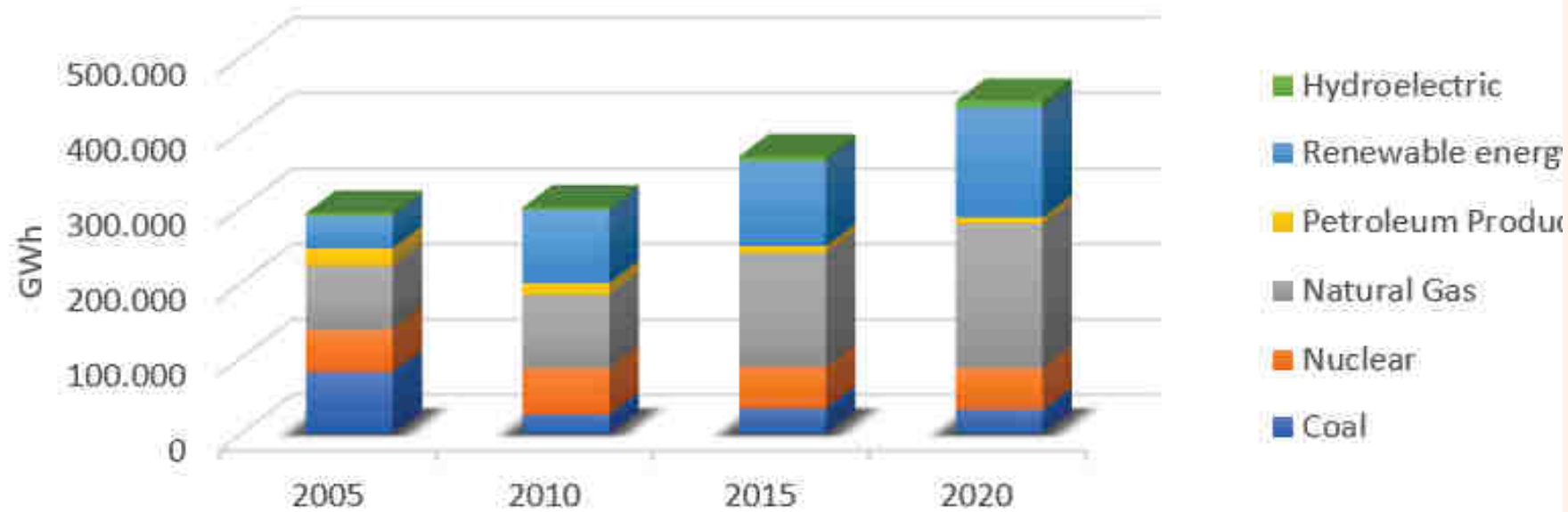


SOLAR ENERGY

Is less used than in other European countries, due to the Sun tax



Evolution of electricity production by energy sources in Spain





SOLAR ENERGY

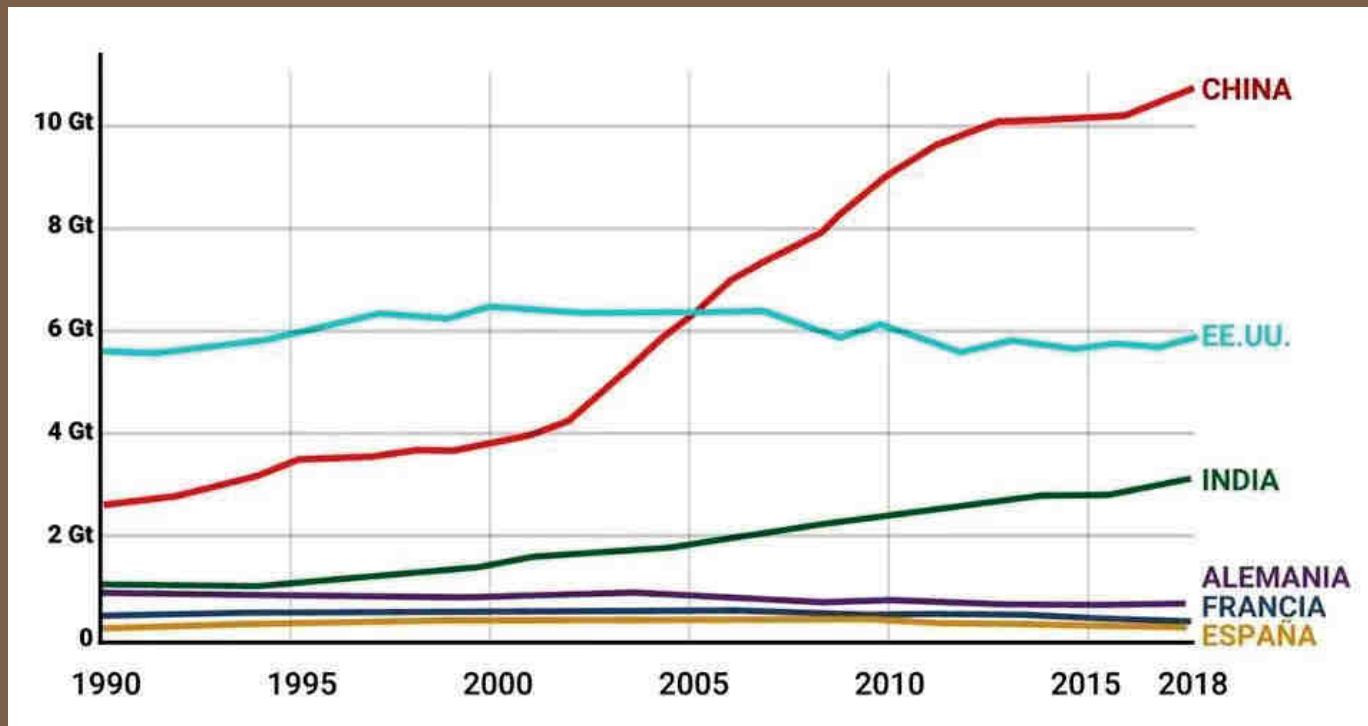
SPAIN'S MOST IMPORTANT RENEWABLE ENERGY

It is divided into:

- photovoltaic solar energy
(solar radiation)
- thermal solar energy.
(solar energy)

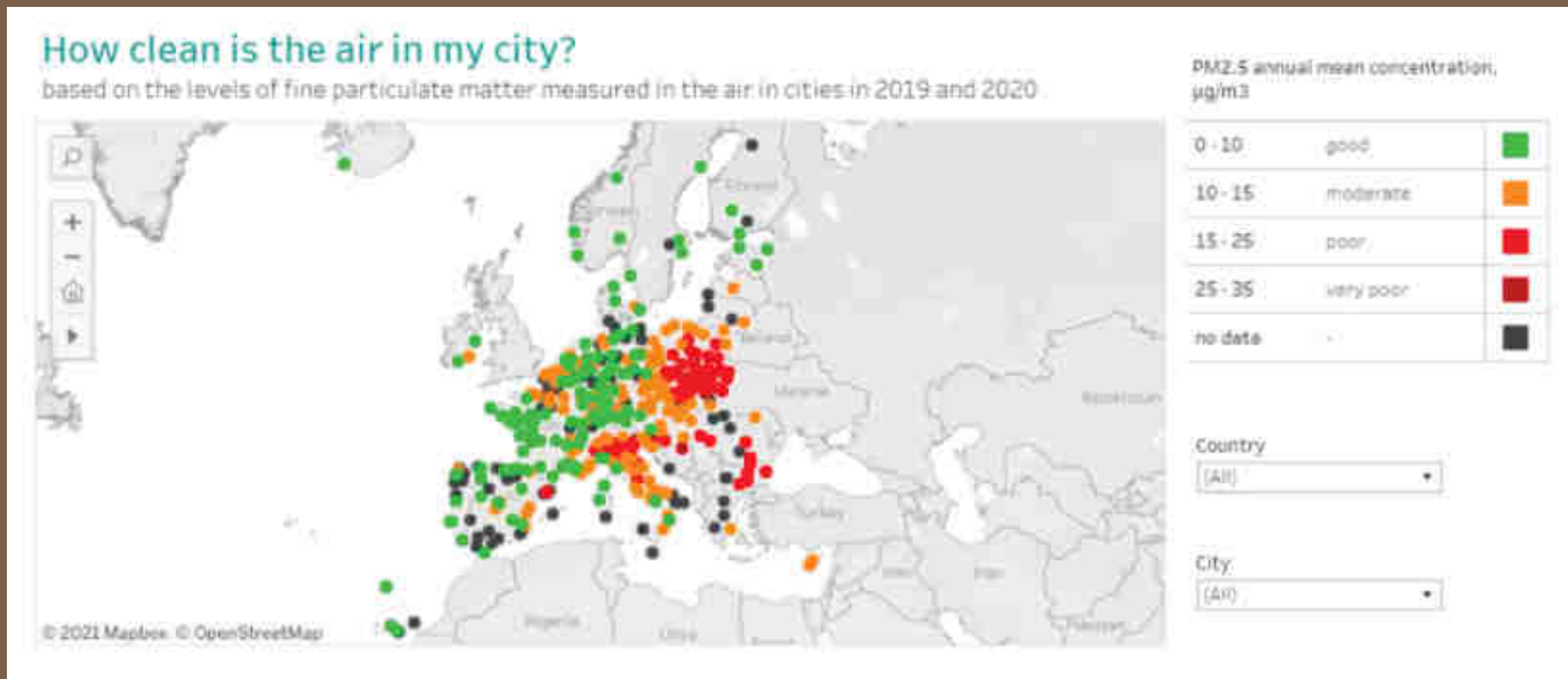
Solar energy does not emit greenhouse gases, does not contribute to global warming and is one of the most efficient renewable technologies in the fight against climate change.

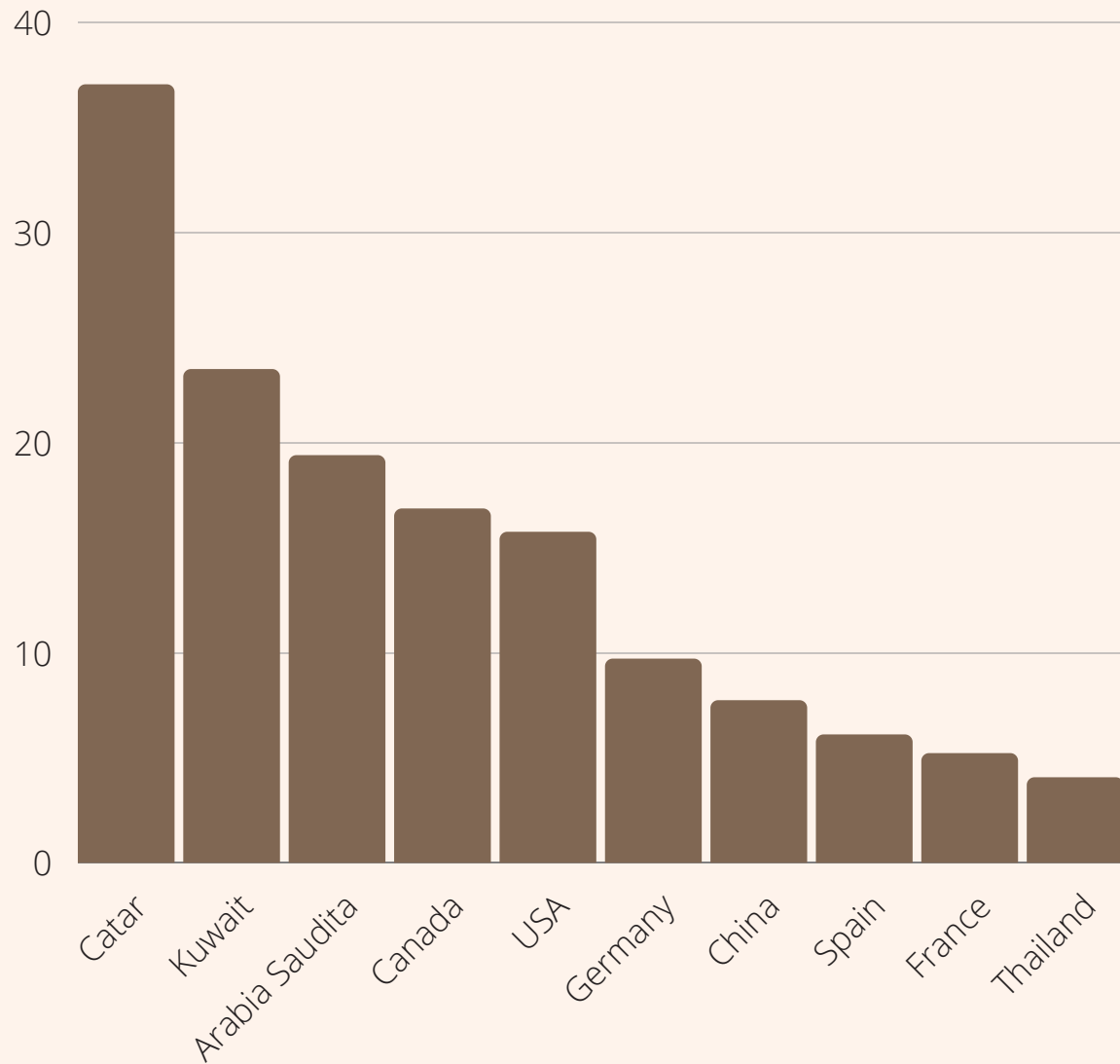
4. COMPARISON OF SPAIN WITH OTHER COUNTRIES AND CITIES



WE COMPARE THE DATA OF THE THREE MOST POLLUTING COUNTRIES WITH THREE OF THE MAIN ECONOMIES OF THE EUROPEAN UNION. EVOLUTION IS NOT GOOD. THE UNITED STATES HAS STABILIZED ITS EMISSIONS AND THE REDUCTIONS OF GERMANY, FRANCE OR SPAIN ARE VERY SMALL

4.COMPARISON OF SPAIN WITH OTHER COUNTIES AND CITIES





Pollution per capita in some countries

Countries that are not highly populated but use very polluting energies are, in relative terms, truly polluting

Spain produces 6.09 tonnes per capita in a year.



5. IMPACT IN ANIMALS AND PLANTS

 average temperatures +  rainfall

CONSEQUENCES:

- At 2100 an increase of 2°C
- 30% species of animals and plants in danger of extinction
- If we continue with same emission, half of the Mediterranean biodiversity would disappear:
 - Most affected: -29% mammals
 - 26% amphibians

IMPACT OF THE LEVEL OF THE SEA

Spain is one of the countries that can be affected by the rise in sea level and especially considering that a large part of this population is concentrated in the coastal areas.

Affected cities:

Alicante. Bilbao, Santander, and Las Palmas de Gran de Canaria

If the rise in sea level ends up exceeding the expected values:

La Coruña, San Sebastián, Málaga, Sevilla, Barcelona or Valencia.



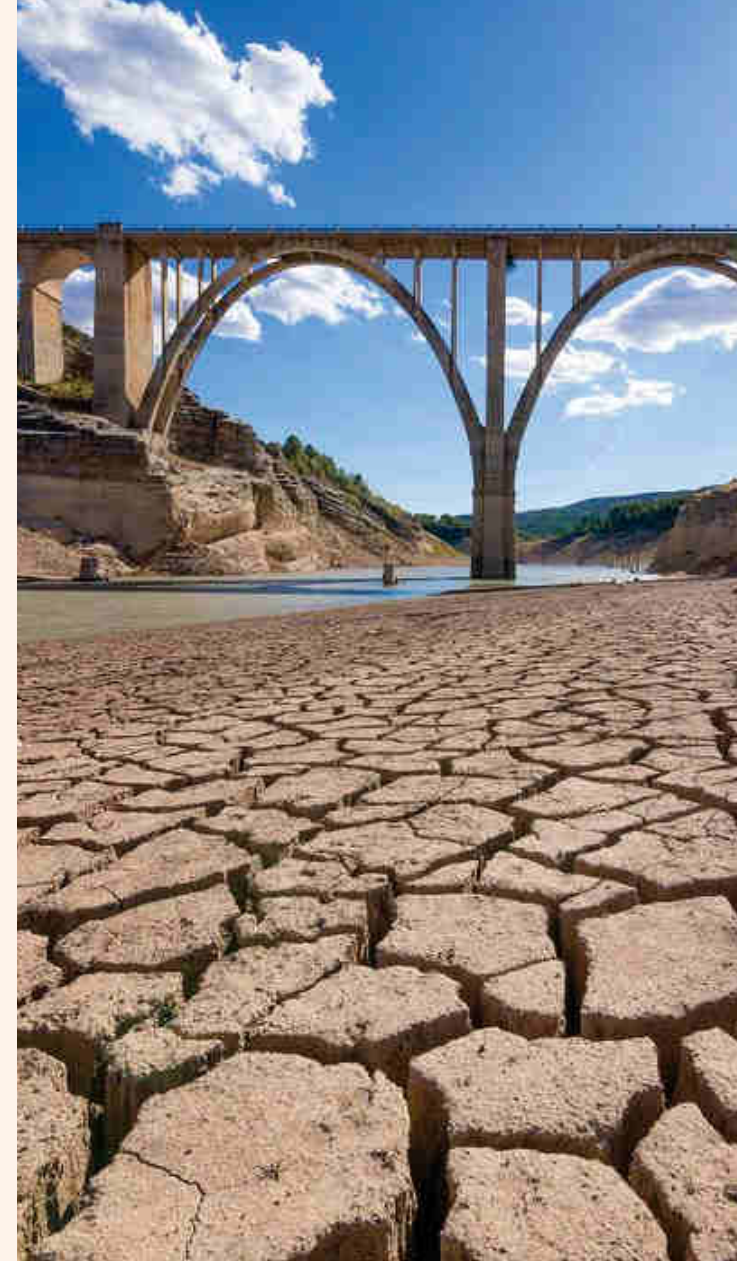
GLOBAL WARMING

In Spain an study realised by the Sustainability Observatory revealed that during the last 50 years the midium temperature it has increased 1'6 °C.

This increase has been noticed in the time period of the seasons.

- According to AEMET our summers lengthen 9 days each decade due to the increase of temperatures.

As consequence the surfaces with semi-arid climates are going forward



EXTREME CLIMATE

- The Mediterranean region is one of the most prone to suffering droughts. The summer drought it's expected to increase between 1 and 3 weeks until the end of the century.
- The warming of the Mediterranean basin supposes a higher energetic availability that favors the severity of:



THE HEAVY RAINS

Around all Spain



THE "MEDIACANES" (A TYPE OF HURACANE)

Eventhow they are lees frequent during autum will be more dangerous and with more duration

6. WHAT CAN WE DO TO SOLVE IT?

Everyone can help limit climate change. From the way we travel, to the food we eat, we can make a difference. Start with these seven action to help tackle the climate crisis.



WHAT CAN WE DO TO SOLVE IT.

SAVE ENERGY AT HOME

Much of our electricity and heat is powered by coal, oil and gas. Use less energy by lowering your heating and cooling, switching to LED light bulbs and energy-efficient electric appliances, washing your laundry with cold water or hanging things to dry instead of using a dryer .

WALK, CYCLE OR TAKE PUBLIC TRANSPORT

The world's roads are clogged with vehicles, most of them burning diesel or petrol. Walking or riding a bike instead of driving will reduce greenhouse gas emissions – and help your health and fitness. For longer distances, consider taking a train or bus. And carpool whenever possible.

CONSIDER YOUR TRAVEL

Aeroplanes burn large amounts of fossil fuels, producing significant greenhouse gas emissions. That makes taking fewer flights one of the fastest ways to reduce your environmental impact. When you can, meet virtually, take a train or skip that long-distance trip altogether.

WHAT CAN WE DO TO SOLVE IT.

REDUCE, REUSE, REPAIR & RECYCLE

Electronics, clothes and other items we buy cause carbon emissions at each point in production, from the extraction of raw materials to manufacturing and transporting goods to market. To protect our climate, buy fewer things, shop second-hand, repair what you can and recycle.

CHANGE YOUR HOME'S SOURCE OF ENERGY

Ask your utility company if your home energy comes from oil, coal or gas. If possible, see if you can switch to renewable sources such as wind or solar. Or install solar panels on your roof to generate energy for your home.

SWITCH TO AN ELECTRIC VEHICLE

If you plan to buy a car, consider going electric, with more and cheaper models coming on the market. Even if they still run on electricity produced from fossil fuels, electric cars help reduce air pollution and cause significantly fewer greenhouse gas emissions than petrol or diesel-powered vehicles.

**THANKS FOR YOUR
ATTENTION**